WSPID19-0546 Society Symposium Society Symposium 2 - Challenges on vaccine preventable diseases in Latin America (Society of Pediatric Infectious Diseases (SLIPE))

CURRENT FACTS AND WHAT'S TO BE EXPECTED IN CONGENITAL ZIKA INFECTIONS <u>E. Lopez Medina</u>¹

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Zika virus (ZKV) is an arbovirus member of the family Flaviviridae, mainly transmitted in the urban environment by *Aedes* (subgenus *Stegomyia*) mosquitoes.

The first reported case of human infection occurred in Uganda, in 1964(2), and the first outbreak occurred in the Yap Island, in 2017. Since then, several epidemics have been described in different regions of the world.

It has been demonstrated that ZKV exposure during pregnancy causes birth defects, specially central nervous system manifestations with or without microcephaly. When outbreaks of ZKV began, it became important to determine what was the risk of developing adverse outcomes in infants born to pregnant women exposed to the virus. Several studies attempted to answer this question, demonstrating frequencies from 6% in the continental US and Hawaii, up to 46% in Brazil.

Currently, a question that remains unanswered is what is the long-term impact of prenatal ZKV exposure in infants with normal baseline neurologic exams, and whether this risk varies according to trimester of exposure. In Cali, Colombia we followed a cohort of 173 pregnancies exposed at different trimesters. We identified 23 pregnancies (13%) with ZKV-related short-term severe negative outcomes, including microcephaly and pregnancy loss. Adjusting for confounders, the risk was 15 times higher in 1st vs. 3rd trimester exposures and 7 times higher in first vs. second trimester exposures. At 18 months of age, the risk of developmental delay, according to the Bayley II scale was 12 times higher in 3rd vs. 1st trimester (95% CI=1.3-104, p=0.002).

In summary, it is clear that children with apparently normal neurologic exams require long-term follow up, specially if exposed later in pregnancy. This congenital infection imposes a high burden upon patients and their families and preventive efforts, specially towards vaccine development, are of paramount importance.

WSPID19-0519 WSPID Workshop WSPID Research Workshop (by invitation only)

WRITING A SUCCESSFUL GRANT APPLICATION

<u>R. Arciaga</u>¹ ¹Zamboanga Peninsula Medical Center, Department of Pediatrics, Zamboanga City, Philippines

Writing a Successful Grant Application

The most challenging task of an investigator is to secure grants and publish a research paper. Writing a successful grant application is a circular process. Applicants must write proposals, submit them to relevant funding agencies, receive notice of acceptance or rejection, revise the proposal and resubmit. When writing a grant proposal, begin early and apply often. Follow the application guidelines exactly. Make explicit the connections between the research objectives, the methods and dissemination plan. Identify your needs and focus. It is important to match the purpose and goals closely with the priorities of the funding agencies. Presentation is key. Be clear, concise and comprehensive. The success of a grant proposal is not only based on the merits of the topic and the methods but also on the way the proposal is written and the manner it is packaged.

WSPID19-0544 World/Special Lecture WSPID Special Lecture

ELIMINATION OF MOTHER-TO-CHILD TRANSMISSION OF HIV: LESSONS LEARNED FROM SUCCESS IN THAILAND

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In 1988, the generalised HIV/AIDS epidemic in Thailand began and in the same year the firstHIV-exposed infant in Thailand was born at King Chulalongkorn Memorial Hospital, Bangkok.From the early to mid-1990s, an epidemic wave of HIV-infected women and infants occurred.Heterosexual HIV transmission, as described in the Asian Epidemic Model, was the majormode of spread in Thailand, causing an increasing number of HIV-infected pregnant women.The early and concerted multi-sectoral response of Thai society reduced the prevalence of HIVinfection in pregnant women from 2% in the mid-1990s to 0.6% in 2015 and mother-to-childtransmission of HIV (MTCT) from an estimated 20–40% to 1.9%. Thus, Thailand became the firstAsian country to achieve the World Health Organization's (WHO) targets for the elimination of MTCT. In this narrative review, the key historic evolutions of the science and policy of preventionof mother-to-child transmission of HIV (PMTCT) in Thailand that addressed the four prongs of the recommended WHO PMTCT strategy are described, and the lessons learned are discussed.

WSPID19-0540 WSPID Symposium WSPID Symposium 1 - Innovation in Infectious Diseases

NEW TECHNOLOGIES TO STUDY TRANSMISSION OF CONTAGIOUS DISEASES SUCH AS TUBERCULOSIS

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While tuberculosis is a very old disease, it is once again the leading cause of death from an infectious agent.

More than a century ago researchers started looking into determinants of TB infectiousness. Hallmark studies using guinea pigs determined that TB transmission takes place via the airborne route and also showed the spectacular effect of treatment on infectiousness. Other questions regarding patient infectiousness remain unanswered. Could cough etiquette prevent transmission? Is TB transmitted by coughing or by breathing making coughing only a sign of infectiousness? New diagnostic tools integrated in traditional research platforms now allow for faster result generation but also open up a new playground for the TB researcher.

Aiming at identifying ways to reduce transmission and turn back the epidemic.

WSPID19-0503 WSPID Symposium WSPID Symposium 1 - Innovation in Infectious Diseases

HOW TECHNOLOGICAL DEVELOPMENTS WILL CONTRIBUTE TO BETTER CARE FOR CHILDREN WITH INFECTIOUS DISEASES

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¹Philips, Chief Medical Officer, Amsterdam, The Netherlands

Our global health systems are near breaking point – the aging population and increasing incidence of chronic disease has led to an **unsustainable cost explosion**, and it is unsurprising that the pressure is mounting. As a priority, the global healthcare community is urgently seeking strategies and solutions to rebalance the status quo.

The answer to address the **Quadruple aim** (better health outcomes, improved patient experience, improved staff satisfaction, lower cost of care) may lie in **value-based care – to drive efficiency and raise quality standards**, this approach attaches incentives and payments according to results, not system workload. The adoption of value-based care requires **openness, trust and strong collaboration** and partnerships between all healthcare stakeholder groups.

Furthermore, **human-centered innovation and digital technology in healthcare** should support clinicians with solutions that reduce complexity, increase productivity and enhance teamwork at the point of care to enable us in addressing the quadruple aim.

WSPID19-0502 WSPID Symposium WSPID Symposium 14 - Tropical Diseases

DIAGNOSIS, TREATMENT AND PREVENTION OF LEPROSY

<u>C. Franco-Paredes</u>¹ ¹University of Colorado- Aurora and Hospital Infantil de Mexico- Federico Gomez, Medicine and Infections Diseases, Denver, USA

Leprosy or Hansen's disease has afflicted humanity since time immemorial. Improvements in hygiene and sanitation and through organized initiatives to deploy multi-drug therapy (MDT) has reduced the overall prevalence of this infection. Despite these interventions, leprosy persists as a chronic mycobacterial infection that imposes a substantial burden of disease and human suffering in many settings and affecting children and adult populations. As a result, leprosy is a Neglected Tropical Disease (NTD) since it is a symptom of social inequity and poverty. By causing neurologic dysfunction, disability and deformity, this NTD promotes underdevelopment by trapping the world's poorest in a cycle of destitution.

Leprosy is caused by two mycobacterial species, *Mycobacterium leprae* and *Mycobacterium lepromatosis*, which upon entering the human host target specific cells including macrophages, histiocytes, Schwann cells, and endothelial cells . The precise mode of transmission of leprosy remains uncertain but probably involves human-to-human contact through respiratory droplets. Recent ecological data suggest that environmental factors such as trauma or skin breaks during soil and water exposures, insect vectors, free-living amoebas, and animal reservoirs (armadillos, squirrels, or others) influences leprosy transmission. The peripheral neuropathy that happens after invading Schwann cells results in peripheral nerve dysfunction produces impaired sensation to touch, temperature, and proprioception causing severe neurologic dysfunction, deformity, and loss of limbs or loss of vision. Historically, stigma leads to self-imposed isolation, decreased social involvement, decreased self-worth, and long-term enduring shame. From a societal perspective, individuals with leprosy have been persecuted, incarcerated, isolated, and mistreated simply because of their illness.

WSPID19-0545 WSPID Symposium WSPID Symposium 14 - Tropical Diseases

PEDIATRIC MELIOIDOSIS - EPIDEMIOLOGY, DIAGNOSIS AND MANAGEMENT <u>M.H. Ooi¹</u>

¹Sarawak General Hospital, Department of Pediatrics, Kuching, Malaysia

Pediatric Melioidosis: Epidemiology, Diagnosis and Management

Melioidosis is a serious and highly fatal community-acquired infection caused by Burkholderia pseudomallei. The infection is endemic in Northern Australia and Southeast Asia. The causative pathogen is a gram-negative environmental saprophytic bacterium found in soil and surface water. A recent study has estimated that the often under-recognised tropical infection affects close to 165,0000 individuals, and causes 89,000 deaths, worldwide every year. It is a leading cause of severe bacterial infection in children in Thailand, Cambodia and Malaysia. Acquired through inoculation, ingestion, aspiration and inhalation of the usually aminoglycoside resistant bacillus, melioidosis has protean clinical presentation. Indeed, seroprevalence studies in children living in endemic regions revealed that many children have acquired asymptomatic infection in their early life. The clinical manifestations of symptomatic B pseudomallei infection vary from fulminant fatal septicaemia to chronic indolent skin and soft tissue infection. Nearly all organs may be affected; the lung and spleen being the commonest. It is a well-recognised "great mimicker" in melioidosis-endemic settings as the disease may resemble tuberculosis or neoplastic lesion(s). While bacterial culture is the diagnostic standard, and 100% specific, it is lacking in its sensitivity (60%), primarily related to low bacterial load in blood (0.1-100 CFU/ml), and its slow growth that often dismissed as culture contaminant or another bacterial species by inexperienced laboratory staff. Increased awareness of the disease, improved laboratory diagnostic and surveillance capacity and timely treatment with melioidosis-active antibiotics (particularly ceftazidime) are key factors in reducing the mortality and morbidity associated with melioidosis.

WSPID19-0521 WSPID Symposium WSPID Symposium 15 - Tuberculosis

TREATMENT OF MULTIDRUG-RESISTANT TB IN CHILDREN - A CHANGING SCENE <u>S. Schaaf</u>¹

¹Stellenbosch University, Desmond Tutu TB Centre-Department of Paediatrics and Child Health, Cape Town, South Africa

Recently there have been major changes in the treatment of multidrug-resistant tuberculosis (MDR-TB) in children. New (bedaquiline; delamanid) and repurposed (linezolid; clofazimine) medications have made shorter, more effective regimens possible. The toxic second-line injectable agents are now hardly indicated.

Observational studies in adults have shown that a 9-12-month, shorter, clofazimine-containing regimen is effective in treating MDR-TB. In 2016 the WHO adopted this regimen, but in the 2019 WHO DR-TB guidelines, the selection criteria for this shorter regimen have become more strict following the outcome of the STREAM I trial and individual patient data analysis comparing long vs shorter treatment regimens. Except for more relapses occurring, and more deaths among HIV-positive patients, the shorter regimen still contains an injectable agent. Some countries, like South Africa, adapted the shorter regimen replacing the injectable agent with bedaquiline, but this needs further evaluation. Dosing and safety data are also still not available in the youngest age groups of children for bedaquiline and delamanid, and no data is available on pretomanid use in children.

Children usually have paucibacillary TB, and shorter regimens with at least 4 effective medications should be efficient in the majority. Certain extrapulmonary TB, e.g. miliary TB and TB meningitis need medications that penetrate the cerebrospinal fluid. Further, both the extent of drug resistance and the severity of disease influence the regimens and duration of treatment. Once treatment is started, adverse effects and tolerability also play a role. Fortunately, if proper regimens are selected, outcomes in children with MDR-TB is generally very good.

WSPID19-0379 WSPID Symposium WSPID Symposium 16 - Emerging Issues and Controversies on Group A Streptococcus and S Aureus Infections in Children

WHAT IS BEHIND THE RESURGENCE OF SCARLET FEVER?

<u>M. Walker</u>¹ ¹The University of Queensland, School of Chemistry and Molecular Biosciences, Brisbane, Australia

The re-emergence of scarlet fever since 2011 poses a new threat to global public health. The capacity of North Asian serotype M12 (*emm12*) *Streptococcus pyogenes* (Group A *Streptococcus*, GAS) to cause scarlet fever has been linked to the presence of novel prophages, including prophage Φ HKU.vir encoding the secreted superantigens SSA, SpeC and the DNase Spd1. Here we investigate the role these exotoxins play in GAS nasopharyngeal infection. In contrast to the other exotoxins, SSA secretion and activity is enhanced by glutathione, which is released from host cellular stores through the action of the pore-forming toxin Streptolysin O. Spd1 is required for optimal growth in human blood, confers resistance to neutrophil killing, and degrades neutrophil extracellular traps (NETs). To examine how these exotoxins contribute to the fitness of GAS, we generated isogenic single and triple knockout mutants in the *ssa*, *speC* and *spd1* genes. Loss of all three exotoxins significantly reduced nasopharyngeal colonization in a mouse infection model, whereas single mutants did not. Our finding suggests a synergistic relationship between these exotoxins, and that acquisition of Φ HKU.vir-encoded exotoxins may have played a key role in selection and expansion of scarlet fever lineages.

WSPID19-0538 WSPID Symposium WSPID Symposium 16 - Emerging Issues and Controversies on Group A Streptococcus and S Aureus Infections in Children

CAN DECOLONIZATION STRATEGIES EFFECTIVELY PREVENT COMMUNITY ACQUIRED AND HEALTH CARE- ASSOCIATED S AUREUS INFECTIONS? S. Kaplan¹

¹Baylor College of Medicine, Pediatrics, Houston, USA

Can Decolonization Strategies Effectively Prevent Community Acquired and Health Care-Associated *S. aureus* Infections?

Staphylococcus aureus is the most common cause of skin and soft tissue infections (SSTI) in normal children as well as serious infections such as osteomyelitis and septic arthritis. Recurrent SSTI due to *S. aureus* occur in up to 50% of children following their first *S. aureus* SSTI episode. *S. aureus* is also one of the leading bacteria causes of with health careassociated infections such as post-operative wound infections, central line associated bloodstream infections, and ventilator associated pneumonia and an important cause of outbreaks in the neonatal intensive care unit.

Decolonization strategies found partially successful for prevention of recurrent SSTIs include a combination of topical antibiotics to the anterior nares, body washes (chlorhexidine, bleach baths) and education regarding hygienic measures. Questions remain regarding who to include in the decolonization efforts, for how long to employ the strategy, what measures for decreasing the burden of *S. aureus* on household surfaces are most critical and what to do if recurrent infections occur despite employing these strategies.

Targeted decolonization of patients colonized with *S. aureus* may decrease the risk of subsequent Health-care associated *S. aureus* infections. Patients to target include those in a setting of a health care outbreak, children preoperatively who will be having cardiac or other surgery or having a device implanted. The decolonization aspects of the Draft Recommendations for the Prevention and Control of *S. aureus* infection in NICU patients in the United States will be discussed.

WSPID19-0462 WSPID Symposium WSPID Symposium 2 - Dengue: A Global Threat

VECTOR CONTROL STRATEGIES FOR DENGUE

<u>O. Horstick</u>¹, R. Boyce², S. Runge Ranzinger¹ ¹University of Heidelberg, Heidelberg Institute of Global Health, Heidelberg, Germany ²University of North Carolina at Chapel Hill, Division of Infectious Diseases, Chapel Hill, USA

There are biological, chemical and environmental methods for dengue vector control. But can these control the vector and/or reduce dengue incidence?

When looking at the available research with recently emerging summary evidence for each individual vector control method, and meta–analyses and systematic reviews covering all vector control methods, and using an a priori framework for the analysis, the following picture evolves: ten existing systematic reviews and two meta–analyses provide low-to-moderate evidence that the control of *Aedes* mosquitoes can be achieved using 1) chemical methods, particularly indoor residual spraying and insecticide treated materials, and 2) biological methods, where appropriate. 3) Environmental methods may contribute, where appropriate. The level of efficacy and community effectiveness to control the vectors, of most methods and in most studies is low, as is the overall assessment of study quality. Furthermore, the results show that to optimise results, larvae and adults should be targeted simultaneously. Evidence of reduction of dengue incidence is very weak. As further elements, high quality of vector control delivery is probably one of the most important features for successful vector control and aiming for high coverage.

The analysis also highlights the urgent need for standards to guide the design and reporting of vector control studies, ensuring the validity and comparability of results. These studies should aim to include measurements of human transmission data – where and when possible.

WSPID19-0536 WSPID Symposium WSPID Symposium 6 - Pneumococcal Symposium

CONTROVERSIES IN THE SCHEDULING OF PNEUMOCOCCAL CONJUGATE VACCINES *L.M. Yoshida*¹

¹Professor, Department of Pediatric Infectious Diseases- Institute of Tropical Medicine-Nagasaki University, Nagasaki, Japan

Pneumonia is the leading cause of death in children less than five years of age worldwide. *Streptococcal pneumoniae* is the major bacteria pathogen of pediatric pneumonia. Fortunately, pneumococcal conjugate vaccines (PCVs) are very potent in preventing the pneumococcal pneumonia burden.

Three PCV formulations, 7-valent (PCV7), 10-valent (PCV10) and 13-valent (PCV13), have been licensed. PCV7 was first licensed in 2000 as a 4-dose schedule. In 2010, PCV10 and PCV13 were licensed using a 4-dose schedule. In a mature PCV program, strong herd effects were induced by both a 3+1 and a 2+1 schedule and resulted in a similar impact on invasive pneumococcal diseases. The World Health Organization recommends PCV for use on a schedule of 3+0 and a 2+1. Recent support by GAVI Alliance has led to a rapid increase in the introduction of PCV into national immunization programs among developing countries. However, the high cost of PCV has threatened the long term maintenance of this progress. Many middle income countries who will graduate from Gavi eligibility soon are facing the difficulty to maintain the high cost burden of the PCV immunization programme. This lead to find new strategies to reduce PCV programme costs, without compromising disease protection. In mature vaccine programmes, individual protection is rarely required because the probability of exposure to vaccine-type infection is low.

A recent report by David Goldblatt and colleagues demonstrated that serotype-specific immunity following the booster dose of both schedules (1p + 1 and 2p + 1) was equivalent for most serotypes. This findings has the potential to initiate a sequence of events that could reduce the number of PCV doses needed and can save billions of dollars in the process. However the effect of a 1p + 1 PCV maintenance programme would require careful monitoring through sustained, high quality pneumococcal disease surveillance programme. Challenges remain about generalizability of this finding, especially for high disease burden settings.

WSPID19-0512 WSPID Symposium WSPID Symposium 7 - Antimicrobial Stewardship into the 2020s

MEASURING AND IMPLEMENTING ANTIMICROBIAL STEWARDSHIP IN DEVELOPED AND DEVELOPING COUNTRIES

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Measuring and implementing antimicrobial stewardship in developed and developing countries

Introduction

Antimicrobial stewardship is a coherent set of actions to promote using antimicrobials responsibly and involves measurement of antimicrobial consumption and use and implementation of interventions and policies to change behaviour.

Methods

A global review was undertaken to identify methodologies used to measure antimicrobial consumption, use, and stewardship, in adults and children, in hospital and primary care.

Findings

Antimicrobial consumption is monitored using Defined Daily Dose (DDD)/1000 inhabitants/day, using aggregate data from insurance reimbursement, sales, imports, public sector procurement, donations and local manufacturers. Comparisons between countries, institutions and within institutions, requires complete data (not always possible to collect). In children, Prescribed Daily Dose (PPD) in mg/kg/day/100 bed- (or patient-) days is used due to wide weight variation.

Point prevalence surveys are used to measure antimicrobial prescribing quality, whether specific clinical conditions are treated in accordance with guidelines, and to target interventions towards particular behaviours. Where there is no electronic prescribing, data must be collected from individual patient paper records, which may be so poor in some countries as to preclude measurement.

Antimicrobial stewardship (done in mainly high-income countries) involving persuasive and restrictive interventions for hospital inpatients, and persuasive interventions for ambulatory care, is effective. In many low/middle-income countries, stewardship is not done, but some studies show that similar interventions and implementation of essential medicines policies are effective.

Conclusion

Antimicrobial stewardship is important to reduce antibiotic misuse/overuse but require resources and should include implementation of interventions, targeted to specific behaviours and contextualised to the country, and implementation of essential medicines policies.

WSPID19-0535 WSPID Symposium WSPID Symposium 8 - Malaria in Pregnant Women and Children

TREATMENT OF INFECTIONS BY PLASMODIUM VIVAX AND PLASMODIUM FALCIPARUM IN CHILDREN

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TREATMENT OF INFECTIONS BY PLASMODIUM VIVAX AND PLASMODIUM FALCIPARUM IN CHILDREN

To illustrate the diagnostic difficulties for a clinician working in a malaria endemic area a case of a comates child will be presented. This case will be used to describe not only the diagnostic challenges, but also the antimalarial treatment option in those children with a final diagnosis of severe falciparum malaria. With respect to the treatment, it will be argued that in order to make a significant contribution to reducing severe malaria related mortality, new anti-malarials may not be enough. The need to combine antimalarials with anti-disease treatment of which various options, already studied or new in the pipeline, will be argued.

The problem of emerging antimalarial resistance will be highlighted focusing on the treatment of uncomplicated malaria in South-East Asian children. The possible consequences when, for example, artemisinin resistant parasites strains spread to Africa and South America will be discussed in combination with remaining treatment options.

Finally, the plasmodium Vivax infection in children will be discussed outlining the clinical symptoms and why plasmodium Vivax infections are not associated with severe disease. The epidemiology of Vivax will be discussed in the context of the spread of drug resistant Vivax strains.

WSPID19-0547 WSPID Symposium WSPID Symposium 9 - ID in the Immunocompromised

AN UPDATE ON IMMUNIZATION IN IMMUNOCOMPROMISED CHILDREN

<u>E.T. Escaño-Gallardo</u>¹ ¹Saint Louis University- School of Medicine, Pediatrics and Microbiology and Parasitology, Baguio, Philippines

An Update on Immunization in Immunocompromised Children

Immunocompromised children represent a heterogeneous population with variable degree and type of immunosuppression. Consequently, immunizing an immunocompromised child is challenging. The goal of immunization for this population is to provide the maximum possible protection against vaccine-preventable infections with minimal harm.

Current recommendations on immunizing an immunocompromised child from the perspective of a low-middle income country (LMIC) will be presented. Challenges encountered in immunizing this population will be discussed. Through a case-based presentation, the following key principles of immunization in immunocompromised children will be explained and immunization strategies highlighted:

- Determine immune status and the degree of immunosuppression
- Perform a careful assessment of risks versus benefits
- Know the current international and local vaccine recommendations
- Administer vaccines for direct protection
 - o Inactivated vaccines
 - o Live vaccines
- Consider providing indirect protection
 - o Immunize household contacts
 - o Immunize health care workers
- Consult a specialist

Improving vaccine uptake in this special population will need increased awareness in the medical community and knowledge about the underlying disease or condition that has brought about the immunosuppression.

WSPID19-0223 Oral Presentations Oral Presentations 1: Vaccination and Its Impact

EFFICACY AND SAFETY OF TYPHOID CONJUGATE VACCINE IN NEPALI CHILDREN: PRELIMINARY RESULTS FROM A RANDOMIZED CONTROLLED TRIAL

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Background:

Enteric fever remains an important public heath issue in developing countries, including Nepal. Typhoid conjugate vaccine(TCV), recently WHO-prequalified and reported to be safe, could be an effective way to tackle the problem.

Aims:

To assess safety and efficacy of TCV in children from 9-months to 15-years of age

Methods:

A randomised controlled trial to assess safety and efficacy of TCV is underway in Nepal, in which participants were randomized 1:1 to receive TCV or capsular group A meningococcal vaccine(MenA). Blood samples were collected from a subset of children on day 0 and 28 to assess immunogenicity. Further samples will be collected at 18 and 24 months. Any local and systemic reactions post vaccination were recorded and all serious adverse events(SAE) were assessed and reported.

Results:

20,019 children were randomised and vaccinated. Minor local and systemic adverse events were comparable in the two groups. Within 1-month post-vaccination 17 participants experienced SAEs (TCV-7, MenA-10); only 1 SAE was identified as vaccine-related. Blood samples for immunogenicity were collected from 1441 children and seroconversion (≥four-fold rise) at 28-days post-vaccination was 97% in the TCV group and 3% in the control group. The interim analysis showed blood culture-confirmed typhoid cases in 0.07% (7/10,005) of the TCV group and 0.38% (38/10,013) of the MenA group giving an overall vaccine efficacy of 81.6% (CI-58.8%-91.8%, P<0.0001).

Conclusion:

Single-dose TCV significantly reduced typhoid cases with over 80% efficacy and the vaccine is well tolerated. Vaccination with TCV could have a major impact on the reduction of typhoid disease burden in Nepali children.

WSPID19-0228 Oral Presentations Oral Presentations 1: Vaccination and Its Impact

THE EFFECTIVENESS OF 13-VALENT PNEUMOCOCCAL CONJUGATE VACCINE AGAINST HYPOXIC PNEUMONIA IN CHILDREN FROM THE EASTERN HIGHLANDS PROVINCE, PAPUA NEW GUINEA

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³University of Melbourne, Department of Pediatrics, Melbourne, Australia ⁴Murdoch Children's Research Institute, New Vaccines Group, Melbourne, Australia

Background:

In Papua New Guinea (PNG), pneumonia is the most common cause of hospitalisation and death in children under 5 years. Infants experience early and dense nasopharyngeal carriage of a broad range of pneumococcal serotypes, which persists throughout childhood. In 2014, 13-valent pneumococcal conjugate vaccine (PCV13) was launched nationally, however suboptimal immunisation coverage continues.

Aims:

Childhood pneumonia surveillance commenced in the Eastern Highlands Province in 2013. These data were analysed to determine the effectiveness of PCV13 against hypoxic pneumonia.

Methods:

Between 2013 and 2019, children <5 years presenting to Eastern Highlands Provincial Hospital or surrounding clinics with clinical pneumonia were enrolled. Hypoxia was defined as having an oxygen saturation <90% on presentation. Vaccination status was obtained from parent-held health records. PCV13 effectiveness (VE) against hypoxic pneumonia was determined by fitting a logistic regression model for vaccination including the following explanatory variables: age, season, year of study enrollment, proximity to hospital, malnutrition and presence of comorbidities. Exposure effects were accounted for using an inverse probability of treatment weighting propensity score method.

Results:

Between January 2013 and December 2018, 1995 children were enrolled: 638 (32.3%) had hypoxic pneumonia and 603 (30.2%) were vaccinated with PCV13. The adjusted VE against hypoxic pneumonia was 24% (95% confidence interval: 11-35%; p=0.001).

Conclusion:

PCV13 is effective against hypoxic pneumonia in young children in PNG. Our findings support the continued use of PCV13 in the national vaccination program in PNG, and other low-resource settings in the region. PCV13 will contribute to reducing child mortality in PNG.

WSPID19-0232 Oral Presentations Oral Presentations 1: Vaccination and Its Impact

COMPARABLE REDUCTIONS IN VACCINE TYPE AND REPLACEMENT DISEASE WITH BOTH PNEUMOCOCCAL CONJUGATE VACCINES IN OLDER ADULTS

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Background:

In children the overall impact of pneumococcal conjugate vaccines (PCVs) on invasive pneumococcal disease (IPD) is comparable, despite having different serotype formulations and conjugation chemistries.

Aims:

As the largest burden of replacement disease now occurs in adults, we evaluated if PHiD-CV and PCV13 also have a comparable overall impact in this population through herd effects.

Methods:

IPD data sets for adults >60/65 years old before PCV7 and after PHiD-CV/PCV13 introduction were identified by literature search and from publicly available surveillance reports in May 2019. Incidence or population-weighted rates of IPD from pre-PCV7 periods were compared to post PHiD-CV/PCV13 use and pooled for each PCV by serotype groupings.

Results:

14 datasets were available to evaluate impact in PCV13 using countries (n=7) and PHiD-CV using countries (n=7). Similar reductions were seen in the common 10 vaccine serotypes (VT10) and in total IPD (Figure). For the three additional serotypes in PCV13, minor differences were noted between PCVs but the largest contributor to overall impact of both PCVs was comparable non-vaccine serotype replacement (both non-VT13 and non-VT10).



Conclusion:

Overall, minor differences in IPD due to serotype 19A are completely overshadowed by similar increases in replacement disease for both PCVs. Consequently, both PCVs provide a small but similar nett herd impact against overall IPD, demonstrating similar comparability as observed in children through direct vaccination effects.

Funding: GlaxoSmithKline Biologicals SA.

WSPID19-0244 Oral Presentations Oral Presentations 1: Vaccination and Its Impact

EFFECTS OF CLIMATIC FACTORS ON DENGUE INCIDENCE IN CENTRAL INDIA: IMPLICATIONS FOR INTERVENTIONS AND CONTROL

<u>R.K. Nigam¹</u> ¹Rajeev Gandhi College- Barkatullah University, Pathology & Cl. Microbiology, Bhopal, India

Background:

Dengue is caused an arbovirus which is transmitted by *Aedes* mosquito. The mosquito lifecycle is known to be influenced by various climatic factors like temperature, rainfall, and relative humidity.

Aims:

This study was carried out to examine whether the climatic factors data can be used to predict yearly dengue cases of Bhopal city, of India.

Methods:

Monthly reported dengue cases and climate data for five years were obtained from the Health officer, Bhopal and Meteorological Department . One-way analysis of variance was used to analyse whether the climatic parameters differed significantly among seasons. Four models were developed using negative binomial generalized linear model analysis. Monthly rainfall, temperature, humidity, were used as independent variables, and the number of dengue cases reported monthly was used as the dependent variable. The first model consider data from the same month, while the other three models incorporate data with a lag phase of 1, 2, and 3 months, respectively.

Results:

Climatic factors like rainfall, maximum temperature and relative humidity were significantly correlated with monthly reported dengue cases. The greatest number of cases was reported during the post-monsoon period. Temperature, rainfall, and humidity varied significantly across the pre-monsoon, monsoon, and post-monsoon periods. The best correlation between these three climatic factors and dengue occurrence was at a time lag of 2 months.

Conclusion:

Climate had a major effect on dengue incidence. The prediction model had some limitations in predicting the monthly dengue cases, it could forecast possible outbreak two months in advance with considerable accuracy, and can act as early warning system.

WSPID19-0266 Oral Presentations Oral Presentations 1: Vaccination and Its Impact

INCIDENCE AND ETIOLOGY OF ACUTE GASTROENTERITIS AMONG FAMILIES FROM A SEMIRURAL, LOW-MIDDLE SOCIOECONOMIC COUNTY IN A MIDDLE-HIGH INCOME COUNTRY (CHILE)

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Background:

Acute gastroenteritis (AGE) remains a major public health problem worldwide. Etiology and transmission of AGE affecting families in middle income countries is scarce.

Aims:

To update annual incidence rates (aIR) of AGE and pathogen distribution among families living in a peri-urban middle income city.

Methods:

Prospective, active, 24-month surveillance study including families with >3 members, with >1 healthy child <24 months of age in Colina, Chile. Families were contacted weekly for detection of any AGE within the household. Stool samples were tested for norovirus, sapovirus and astrovirus by RT-PCR, rotavirus by ELISA, enteric adenovirus by immunechromatography, bacterial pathogens by culture, and for diarrheogenic *Escherichia coli* (DEC) by multiplex PCR.

Results:

103 families were followed starting April/June 2016. All index children were up to-date on wellbaby visits/vaccines (none received a rotavirus vaccine). A total of 159 family AGE episodes were detected including 174 individuals affected, mostly children <2 years of age. AGE aIR were 0.77 and 0.94 for families and children <24 months respectively. Most family episodes affected only one member (92%). Pathogen yield in 169 samples analyzed was 57% (97/169) of which 82/97 (85%) were sole infections and 67/97 (69%) were viral. Norovirus was the most common pathogen identified (26), followed by EPEC (25), rotavirus (24) and astrovirus (23). Mixed infections involved either norovirus/sapovirus, rotavirus or astrovirus.

Conclusion:

In this Chilean middle income population annual family incidence of AGE was 0.8, mostly affecting children <2 years, with low intrafamiliar transmission. Enteric viruses represented over 2/3 of identified agents.

WSPID19-0309 Oral Presentations Oral Presentations 1: Vaccination and Its Impact

IMPACT OF THE REDUCED ANTIGEN-CONTENT DIPHTHERIA-TETANUS AND THREE-COMPONENT-ACELLULAR PERTUSSIS (DTPA) IMMUNIZATION DURING PREGNANCY ON SUBSEQUENT INFANT IMMUNIZATION SERORESPONSES: FOLLOW-UP FROM A LARGE RANDOMIZED TRIAL

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Background:

Immunization with dTpa during pregnancy results in high levels of maternally transferred pertussis antibodies in infants but may interfere with infant immune responses to routine pediatric vaccines.

Aims:

We evaluated maternal immunization effect on immunogenicity and safety of hexavalent diphtheria-tetanus-three-component-acellular-pertussis-hepatitis B virus-poliovirus and *Haemophilus influenzae* type-b vaccine (DTaP-HepB-IPV/Hib) and 13-valent pneumococcal conjugate vaccine (PCV13) post-primary immunization in infants.

Methods:

In this phase IV, multi-country, open-label study (NCT02422264), 6-14-week-old infants born to mothers who received a single dTpa-dose or placebo during 270/7-366/7 weeks' pregnancy followed by cross-over vaccination with placebo or dTpa post-delivery were enrolled in two parallel groups: dTpa or Control, based on their mother vaccination during pregnancy (NCT02377349). All infants received 2 or 3 doses of DTaP-HepB-IPV/Hib (co-)administered with PCV13 according to national schedules. Vaccine-induced immune responses, solicited/unsolicited adverse events (AEs) and serious AEs (SAEs) were descriptively evaluated.

Results:

601 infants were vaccinated. One-month post-priming, all infants had protective antibody concentrations against diphtheria and tetanus, and \geq 94.5% against HBs, polio and Hib (Fig.1A). For pertussis antigens, geometric mean antibody concentrations were lower in dTpa group versus Control (Fig.1B). For most PCV13-specific serotypes, \geq 91.4% of infants had antibody concentration \geq 0.35µg/mL (threshold) (similar in both groups). Solicited/unsolicited AE rates

were similar between groups. No vaccination-related SAEs were reported. Figure 1. Seroprotection rates for diphtheria, tetanus, hepatitis B, poliovirus and Hib antibodies (A) and geometric mean antibody concentrations against pertussis antigens (B) one-month post-primary vaccination (according-to-protocol cohort for immunogenicity)



N, maximum number of infants with post-vaccination results available; CI, confidence interval; D, diphtheria; T, tetanus; HBs, hepatitis B surface antigen; polio 1–3, poliovirus types 1–3; PRP, Hib polyribosylribitol phosphate; GMC, geometric mean concentration; FHA, filamentous haemagglutinin; PRN, pertactin; PT, pertussis toxoid; (m)IU, (milli)international unit; ED50, effective dose causing 50% effect.

Conclusion:

Pertussis antibodies transferred during pregnancy may decrease the risk of pertussis infection during the first months of life but interfere, in many cases, with infants' ability to produce pertussis antibodies. The clinical significance remains not fully known and further monitoring is required.

Funding: GlaxoSmithKline Biologicals SA

WSPID19-0507 Oral Presentations Oral Presentations 1: Vaccination and Its Impact

ADVERSE EVENTS AFTER TDAP5 VACCINATION IN PREGNANT WOMEN AS REPORTED IN THE TAIWAN ADVERSE DRUG REACTIONS (ADRS) REPORTING SYSTEM, JANUARY 2011–DECEMBER 2018

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Background:

Pertussis remains a disease of public health importance. Because majority of severe cases and hospitalizations occurring among very young infants, several countries have recommended Tdap vaccination in pregnancy to protect those too young to be vaccinated.

Since 2011, Taiwan officially recommended Tdap vaccination during pregnancy. There are two marketed Tdap vaccines in Taiwan: Adacel® (Tdap5) and Boostrix® (Tdap3).

Aims:

This study aims to characterize adverse events (AEs) after pregnancy Tdap5 vaccination reported to the National ADRs Reporting System (spontaneous reporting system run by Taiwan Food and Drug Administration).

Methods:

We reviewed all reported AEs in the ADRs System involving subjects who received Tdap5 vaccine during pregnancy from January 1, 2011 through Dec 31, 2018.

Results:

Within the study period, a total of 301,141 doses of Tdap5 were distributed, and majority were given to pregnant women. Eight subjects reported AEs following Tdap5 vaccination during pregnancy. The mean age of subjects is 33 years old. The most common AEs were injection site reactions (3 cases) followed by facial edema and rashes (2 cases). No fever events were reported.

There were 3 severe AEs: 1) 35-year-old woman developed Miller-Fisher syndrome 17 days after vaccination; 2) 32-year-old woman had facial numbness one day after vaccination; and 3) 41-year-old woman experienced pre-eclampsia 16 days after vaccination. None of these cases were shown to have a causal-relationship with Tdap5 vaccination.

Conclusion:

Since its use in pregnancy in Taiwan in 2011, Tdap5 has demonstrated a favorable safety profile and has been well- tolerated in this population.

WSPID19-0523 Oral Presentations Oral Presentations 1: Vaccination and Its Impact

DIFFERENTIAL VACCINATION ACCEPTABILITY AND SATISFACTION OF 628 CHILEAN PARENTS AFTER HEXAVALENT COMPARED TO PENTAVALENT PLUS OPV VACCINATION AT 6 MONTHS OF AGE

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Background:

A programmed national immunization switch allowed the unique opportunity to compare parental acceptability and satisfaction of child's wP pentavalent + OPV or aP hexavalent vaccine at 6-months of age.

Aims:

To compare vaccine uptake and satisfaction.

Methods:

In August 2018, parents of 4-month-old infants seeking vaccination in public clinics within Santiago's metropolitan region were enrolled. All receive hexavalent/pneumococcus vaccines at 4 months. A 6-month vaccination shift was programmed for December 2018, from DTwP-Hib-HepB + OPV (Group 1) to DTaP-Hib-HepB-IPV (Group 2). A *day-of vaccination questionnaire* applied after 4- and 6-month vaccinations evaluated parents' knowledge about vaccines, perceived benefits, satisfaction with process, and the child's reactions during vaccination. A *one-week post-vaccination questionnaire* evaluated post-vaccination reactions and parents' overall satisfaction.

Results:

A total of 266/253 (Group 1) and 362/360 (Group 2) responses were analyzed for day-of-vaccination/one-week post-vaccination questionnaires, respectively. Thirteen answers differed significantly between groups, at 6-months (p value < .05); all were favorable for Group 2 compared to Group 1. Parents in Group 2 found vaccination to be easier, less stressful and quicker; their child's sleep was less affected in the week following vaccination; fewer parents indicated that their social/leisure activities, daily routine, and presence at work were affected by

their child's reactions. Eventually, more parents in Group 2 were satisfied/very satisfied with the vaccines received.

Conclusion:

In a large Chilean prospective study with overall high vaccination satisfaction, vaccination with aP hexavalent vaccine at 6-months of age was associated with higher parental acceptability and satisfaction compared to wP pentavalent vaccine plus OPV.
WSPID19-0159 Oral Presentations Oral Presentations 2: Bacterial Infections in Different Organ Systems - I

MRI SPECTRUM OF MENINGITIS IN PATIENTS UP TO EIGHTEEN YEARS IN AGE: A ONE YEAR REPORT FROM A TERTIARY CARE HOSPITAL OF NORTHERN INDIA

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Background:

Ours is a 3452 bedded tertiary care hospital of Northern India, with a huge patient inflow. It is particularly well known for giving excellent pediatric neuro-radiology services.. Due to high morbidity and mortality associated with meningitis in children we decided to work on the spectrum of this condition.

Aims:

To find spectrum of meningitis in children Northern India and to assess common MRI features in different types.

Methods:

MR images of 116 patients with proven meningitis of different types, aged 1 month to 18 years, scanned between 1st May 2018 and 30th of April 2019 in our department were retrospectively evaluated.

Equipment: GE Signa Explorer, 1.5 Tesla, 16 channels MR Scanner Sequences: Axial- T1WI FSE, T2WI FRFSE, T2 FLAIR, DWI, and SWI Coronal & Sagittal- T2WI FRFSE Post contrast: T1WI FSE with fat suppression, and 3D T1WI SPGR

Results:

86 (74.13 %) patients had tubercular meningitis (TBM), 25 (21.55 %) patients had acute bacterial meningitis (ABM) and 5 (4.31 %) patients had neurocysticercosis (NCC) with meningitis.

Figure 1:



Figure 1: 16 year F (A, B) T1+C sequences showing diffused thickening and enhancement of meninges with enhancing exudates in both cerebral convexities, sylvian fissures and basal cisterns resulting in dilatation of both lateral ventricles and the third ventricle - tubercular

Figure 2:





Figure 2: 4 month F (A) T1+C (B, C) DWI, ADC sequences showing diffused pachy leptomeningeal enhancement over both cerebral convexities & in both sylvian fissures (meningitis). Collection displaying signal intensity alteration and peripheral contrast enhancement with patchy areas of diffusion restriction in subdural space over both frontal regions (subdural empyema) – pyogenic.

Figure 3:



Figure 3:

16 year M (A) T2W image shows a ring lesion (small arrow) in the right lateral ventricle- NCC. The right ventricle is dilated due to a thin septum at the right foramen of Monroe (not seen in this Image). Consequent periventricular CSF leak is seen The interventricular septum is bowed to the left (large arrow) (2011) Consequent perivent of the right ventricular constraints in the ventricular local period area of the right ventricular constraints are perivent of the right ventricular constraints are perivent.

(B) T1+ C image shows peripheral enhancement of the intraventricular lesion- NCC. Enhancement of the right ventricular ependyma is noted (large arrow)- ventriculitis. Overlying meningeal enhancement is seen in both cerebral convexities (small arrow)- meningitis

Conclusion:

All types of tuberculosis are still a burden worldwide with majority cases coming from India, China, Pakistan, Indonesia and South Africa. Consequent to high overall burden, we found TBM in 74.13 % patients. Common MRI features were basal enhancement, hydrocephalous, tuberculomas and infarcts. We found ABM in 21.55 % patients, higher than the community incidence in India. MRI features were: leptomeningeal enhancement, hydrocephalous, ventriculitis, infarcts and extra axial collections. Association of meningitis with extra parenchymal NCC has been reported. We found it in 4.31%.

WSPID19-0229 Oral Presentations Oral Presentations 2: Bacterial Infections in Different Organ Systems - I

PAEDIATRIC INVASIVE MENINGOCOCCAL DISEASE IN AUCKLAND, 2004-2017

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Background:

Invasive meningococcal disease (IMD) is a leading cause of life-threatening infection in children. New Zealand experienced a prolonged epidemic of group B meningococcal disease, beginning in 1991 and peaking in 2001. The epidemic waned in parallel with the introduction of a tailor-made vaccine, MeNZB.

Aims:

To describe the Auckland experience of paediatric IMD, including demographic factors, clinical presentations, microbiology, and outcomes.

Methods:

Clinical notes were reviewed for all positive meningococcal cultures from sterile sites and positive blood or CSF PCR results notified to the national reference laboratory between 2004 and 2017 in children <15 years from the Auckland region.

Results:

One hundred sixty-eight children were included. Median age at presentation was 16 months and 59% were aged <2 years; 57% were boys. Māori (37%) and Pacific peoples (39%) were disproportionally affected. Clinical presentations included meningitis (27/167), bacteraemia (81/167), meningitis plus bacteraemia (57/167), and isolated septic arthritis (2/167). Thirty-seven children (22%) were admitted to an intensive care unit. Serotypes included group B (82%), group W (7.7%), group C (6.0%), group Y (4.2%). The proportion of isolates with a

penicillin MIC >0.06mg/L was 19% in 2004/2005 and 57% in 2016/2017 (p=<0.001). There were six deaths (CFR 3.6%), with five occurring in those aged <2 years. Sequelae occurred in 31/156 children (20%), including hearing loss (17%), neurological (4.5%), skin grafting or amputation (2.6%), renal impairment (1.9%).

Conclusion:

IMD remains a significant cause of childhood morbidity, particularly in infants and toddlers. The CFR in this series is lower than described in other paediatric cohorts.

WSPID19-0249 Oral Presentations Oral Presentations 2: Bacterial Infections in Different Organ Systems - I

LONG-TERM OUTCOME OF LATE ONSET NEONATAL SEPSIS (LOS) AND MENINGITIS IN NEOMERO STUDIES

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Background:

LOS and meningitis have been found to affect long-term neurodevelopmental outcome.

Aims:

To describe and compare neurodevelopmental outcome of participants of the NeoMero1 (NM1; LOS) and NeoMero2 (NM2; meningitis); the randomised controlled trials comparing meropenem to standard of care.

Methods:

Surviving participants of the NM1 (n=252) and NM2 (n=51) trials were invited to long term follow up (LTFU) at the corrected age of 22 to 28 months. Neurodevelopment was assessed using Bayley Scales of Infant Development (BSID-III) and general health by Health Status Questionnaire.

Results:

In NM1 129 (51%) and in NM2 25 (49%) subjects participated in LTFU. Mean (SD) age in NM1 and NM2 at main trial recruitment was similar (23.5 (19.0) vs 19.8 (22.5) days but gestational age (GA) was lower in NM1 (31.1 (5.4) wks) vs NM2 (33.8 (5.9); p=0.04. The mean (SD) BSID-III composite cognitive score 93(18) vs 88(17), language 87(18) vs 81(18) and motor 92(20) vs 88(20) were similar in NM1 vs NM2, respectively regardless of GA. 21.5% vs 28.6% infants had cognitive, 37.1% vs 50.0% had language and 24.5% vs 21.4% had motor scores <85 in NM1 vs NM2, respectively. The presence of respiratory (9.0 vs 8.3%), renal (3.6 vs 4.2%) or gastrointestinal (10.8 vs 16.7%) problems and seizures (4.7 vs 12.5%) occurred in similar frequency in NM1 vs NM2, but other neurological problems were more common in NM2 (8.4 vs 25.0%, p=0.03).

Conclusion:

Both neonatal meningitis and LOS were associated with similar neurodevelopmental delay at age of 2 years.

WSPID19-0410 Oral Presentations Oral Presentations 2: Bacterial Infections in Different Organ Systems - I

MICROBIOLOGY OF EARLY- AND LATE-ONSET BLOODSTREAM INFECTIONS (BSI) AMONG HOSPITALIZED NEONATES: FINDINGS FROM THE SEPSIS PREVENTION IN NEONATES IN ZAMBIA (SPINZ) STUDY

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Background:

In high-income countries (HIC), the microbiology of bloodstream infections (BSI) among hospitalized neonates varies by chronologic age; *Streptococcus agalactiae* is the most common early-onset pathogen while staphylococcal spp. and gram-negative pathogens predominate in late-onset BSI. Limited data suggest that similar pathogens cause early- and late-onset BSI among neonates hospitalized in low-and-middle-income countries (LMIC).

Aims:

To describe the microbiology of early- and late-onset BSI in a LMIC neonatal care unit (NCU).

Methods:

Secondary analysis of a prospective cohort study of sepsis among hospitalized Zambian neonates. Outborn neonates were excluded. Blood cultures were obtained when common neonatal sepsis criteria were met. Early-onset BSI were defined as onset <3 days after birth. BSI organisms were classified as skin commensals or pathogens using conventional definitions.

Results:

We enrolled 1064 neonates who experienced 438 BSI, including 120 due to commensal organisms (27%). Pathogens were more common in late- vs. early-onset BSI (191/246, 78% vs. 127/192, 66%, p=0.007). Half of BSI (234/438, 53%) were due to *Klebsiella pneumoniae*; late-

vs. early-onset BSI did not differ (139/246, 56% vs. 95/192, 49%; p=0.14). *Enterococcus* spp. were more commonly isolated from late- vs. early-onset BSI (39/246, 16% vs. 17/192, 9%; p=0.030).

Conclusion:

In this single center study, enteric pathogens were the most common causes of early- and lateonset BSI. Although *Enterococcus spp.* were more prevalent among neonates with late- as compared to early-onset BSI, the preponderance of enteric pathogens in both early- and lateonset BSI suggests the pathogenesis of BSI may differ among hospitalized neonates in LMIC vs. HIC settings.

WSPID19-0426 Oral Presentations Oral Presentations 2: Bacterial Infections in Different Organ Systems - I

PERIORBITAL CELLULITIS - ARE WE OVER-TREATING?

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Background:

Periorbital cellulitis in children is often treated conservatively to avoid the risk of missing orbital cellulitis. Few studies describe children with periorbital cellulitis treated with oral antibiotics and the use of outpatient parenteral antimicrobial therapy (OPAT) for this diagnosis.

Aims:

We aimed to investigate the outcomes of children diagnosed with uncomplicated periorbital cellulitis.

Methods:

This was a 5-year prospective observational study of children (6 months-18 years) presenting to the Emergency Department (ED) with uncomplicated periorbital cellulitis from 2013-2017. Children with suspected orbital cellulitis, toxicity or immunosuppression were excluded. Data collected included demographics, clinical features, re-presentations and treatment duration.

Results:

There were 213 patients diagnosed with periorbital cellulitis, with 67 (31%) treated with oral antibiotics. Of the 146 children treated with IV antibiotics, 37 (25%) were treated at home with OPAT while the remainder were hospitalised. Children who were treated with IV antibiotics were more likely to have systemic features (40% versus 21%, p=0.01) and moderate/severe swelling (51% versus 21%, p<0.01) compared to those treated with oral antibiotics. In the IV group, there were no differences found in clinical features and antibiotic duration between OPAT and hospital patients. Of those treated with oral antibiotics, 2 (3%) re-presented and were subsequently treated with IV antibiotics. 2 (1%) patients treated with IV antibiotics were subsequently diagnosed with orbital cellulitis, requiring surgical drainage.

Conclusion:

The low rate of re-presentations in patients treated with oral antibiotics is reassuring. For those deemed to require IV treatment, OPAT is safe and efficacious, with low risk of change in diagnosis.

WSPID19-0440 Oral Presentations Oral Presentations 2: Bacterial Infections in Different Organ Systems - I

WEIGHTED-INCIDENCE SYNDROMIC COMBINATION ANTIBIOGRAMS TO GUIDE EMPIRIC TREATMENT OF URINARY TRACT INFECTIONS IN CHILDREN

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Background:

Urinary Tract Infection (UTI) are one of the most frequent clinical bacterial infections in children. Antibiotic therapy is usually administered empirically based on local epidemiology. In contrast to usual antibiograms, which reflect the percent susceptibility of individual organisms to individual antibiotics, the weighted-incidence syndromic combination antibiograms (WISCAs) provide a weighted susceptibility of all organisms causing a given infectious syndrome.

Aims:

To evaluate the ability of WISCAs to inform the selection of empirical antibiotic treatment (EAT) for suspected paediatric UTIs.

Methods:

WISCAs were developed by estimating the coverage of nine empirical antibiotic regimens for UTIs using a Bayesian model stratified by age, gender and previous antibiotic treatment.

Results:

The study used microbiological data on 258 urine cultures from children aged 0-14 with clinical UTI symptoms and positive urine analysis from January 2016 to December 2018 from the Paediatric Emergency Department at University of Padua. *E. Coli* and *Proteus spp.* were the most frequently observed (85% and 8%). Clinically important differences among the nine antibiotic regimens coverage were derived with sufficient precision using pooled urine culture (Figure 1 and 2). Amoxi-clav showed a median sensitivity of 80% in children not receiving prophylaxis. III-generation cephalosporins with a median sensitivity of 93% represents a valuable rescue therapy in septic patients or in case of EAT failure. The combination therapy

with ampicillin + gentamycin provides high coverage in the neonatal population (median sensitivity 94%).





Conclusion:

WISCA is a useful site specific tool to guide EAT for UTI in children according to patient characteristics.

WSPID19-0477 Oral Presentations Oral Presentations 2: Bacterial Infections in Different Organ Systems - I

THE AETIOLOGY OF PNEUMONIA AND MENINGITIS IN HOSPITALISED CHILDREN FROM THE EASTERN HIGHLANDS PROVINCE, PAPUA NEW GUINEA

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Background:

Childhood pneumonia and meningitis remains a frequent cause of hospitalization and death in Papua New Guinea (PNG) highlands. Vaccines are available, but there are limited aetiological data to inform vaccination programs.

Aims:

We report on the bacterial aetiology of pneumonia and meningitis.

Methods:

Children presenting with moderate-severe pneumonia and/or meningitis to the Goroka Provincial Hospital and urban clinics in Goroka town were prospectively enrolled (2013-2019). Blood, cerebral spinal fluid (CSF; where appropriate) and nasopharyngeal swabs were taken. Bacteraemia was identified using standard culture techniques, with antimicrobial susceptibility testing being conducted by disc diffusion and E-tests®. Serotyping was conducted using commercially obtained antisera.

Results:

Of 2162 children enrolled, 2122 blood cultures and 38 CSFs were collected and cultured. Invasive bacterial infection was indentified in 53 cases: *Streptococcus pneumoniae* (SP: n=29); *Haemophilus influenzae* (HI: n=12); mixed *SP/HI* (n=1); *Staphylococcus aureus* (n=1) and Gram negative bacteria (n=10). Of pneumococcal isolates, 50% (15/30) were serotypes included in the 13 valent pneumococcal conjugate vaccine. All occurred in undervaccinated children. Of the *H. influenzae* isolates, 85% (11/13) were type b (Hib), with one identified from a child fully vaccinated with pentavalent. Ceftriaxone, penicillin and chloramphenicol susceptibility was 100%, 97% (29/30) and 90% (27/30) respectively among pneumococcal isolates. *Haemophilus* resistance was common: 70% (9/13) were resistant to both ampicillin and chloramphenicol; however, 92% (12/13) were susceptible to ceftriaxone.

Conclusion:

Childhood pneumonia and meningitis is common in PNG. Rates of confirmed invasive SP and HI disease are lower than expected. More than half of isolates identified were vaccine preventable.

WSPID19-0525 Oral Presentations Oral Presentations 2: Bacterial Infections in Different Organ Systems - I

ASSOCIATION OF PROCALCITONIN, CRP, ESR AND CBC WITH THE SEVERITY OF PEDIATRIC PNEUMONIA IN A TERTIARY HOSPITAL <u>K.C. Fontelera¹</u>, J. Teves¹, N. Anchores¹, A. Yason¹, M. Abuel¹

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Background:

Pediatric Community-Acquired Pneumonia(PCAP) remains the leading cause of morbidity and mortality worldwide in children <5 years old. Acute phase reactants(APR) such as C-Reactive protein(CRP), Erythrocyte Sedimentation Rate(ESR) and Procalcitonin(PCT) were identified to help diagnose local and systemic infections. Currently, No local study is available regarding its use in determining severe pneumonia.

Aims:

To determine the association of APR with severity of pneumonia among patients admitted in a tertiary hospital.

Methods:

A cross-sectional study, including patients ages 1 to 18 years old, diagnosed with pneumonia guided by 2012 PCAP guidelines from November 2016 to October 2017. Upon admission peripheral venous blood were collected todetect the PCT, CRP, ESR, CBC and blood culture and sensitivity prior to initiation of antibiotics. Once results were available they were correlated with the severity of pneumonia. Descriptive statistics was used to summarise patients' demographic and clinical characteristic. Appropriate statistical methods were used to analyze the data.

Results:

APR level revealed significant difference for procalcitonin(p value<0.001) and ESR(p value=0.041 and 0.007). Procalcitonin was higher as PCAP severity increases(mean 0.06 vs 0.17 vs 1.89) and same for ESR(median 10 vs 28 vs 38). PCT has the highest accuracy(65.67%), sensitivity(100%) predictive value(38.24%) but with moderate specificity(56.25%) in determining severity of pneumonia compared to CRP and ESR.

Conclusion:

There is an association between APR and PCAP severity. Procalcitonin has the highest positive predictive value(PPV)38.24% compared to CRP(26.67%) and ESR(25.27%). High PPVs would

justify that the patient will have or is with severe pneumonia, which may require intensive management.

WSPID19-0528 Oral Presentations Oral Presentations 2: Bacterial Infections in Different Organ Systems - I

NEISSERIA MENINGITIDIS AND THEIR SEROGROUPS IN BLOOD AND CEREBROSPINAL FLUID TESTED VIA REAL-TIME POLYMERASE CHAIN REACTION IN THE PHILIPPINES, 2017–2018

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Background:

Neisseria meningitidis or meningococci cause bloodstream infection and meningitis in humans, especially infants and children. Six serogroups (A, B, C, W135, X, and Y) have been known to cause all invasive meningococcal disease and outbreaks globally. The 2004–2005 outbreak of serogroup A meningococcal disease in Cordillera Administrative Region led to the nationwide use of vaccines against serogroup A, C, W135, and Y for ages two to eight years.

Aims:

This study aims to report the number of detected meningococci and their corresponding serogroups from blood and cerebrospinal fluid specimens of suspected cases received by the Research Institute for Tropical Medicine World Health Organization–National Laboratory for Invasive Bacterial Vaccine-Preventable Diseases (IBVPD) between January 2017 and December 2018 from Disease Reporting Units throughout the country.

Methods:

Deoxyribonucleic acids were extracted from samples and real-time polymerase chain reaction (PCR) was used to detect meningococci-specific *sodC* and serogroup-specific genes.

Results:

Forty-eight cases (thirty-one in blood, thirteen in CSF, and four in both blood and CSF) out of 2,823 suspected cases (1.70%) were positive for meningococci. Ages of infected range from 20 days to 66 years old. Thirty-three cases (68.75% of 48) were positive for serogroup B; eight cases for serogroup W135; one case for serogroup C; and six cases were ungroupable.

Conclusion:

The prevalence of serogroup B in invasive meningococcal diseases in the Philippines may warrant the research and introduction of meningococcal B vaccines, which have not yet been available in the country but are already available in other countries.

WSPID19-0126 Oral Presentations Oral Presentations 3: Emerging and Zoonotic Infections

SCRUB TYPHUS ,A MAJOR CAUSE OF PICU ADMISSION AND MULTIPLE ORGAN DYSFUNCTION SYNDROME(MODS) –A SINGLE CENTRE EXPERIENCE FORM INDIA

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Background:

Scrub typhus(ST) has been globally recognised as an emerging infectious disease contributing significantly to undifferentiated fever and a potential cause of multiple organ dysfunction syndrome(MODS). We studied the incidence of ST as a cause of PICU admission and MODS in our hospital and its clinical and laboratory characteristics

Aims:

To measure the incidence and pattern of MODS caused by Scrub Typhus and their outcome.

Methods:

This study was done in a Paediatric teaching hospital in Kolkata, India. Records of patients admitted with undifferentiated fever from March-2012 to May-2019 were reviewed. Rathi-Goodman-Aghai(RGA) scoring system was used to identify potential ST patients and confirmed by serological testing. Clinical characteristics, laboratory findings and treatment response were noted of those needing PICU admissions.

Results:

ST was the serologically confirmed in 257 out of 2344 cases of children presented with undifferentiated fever. PICU admission was needed in 62 of them(24%). It contributed 8.43% of total PICU admissions and 18.29% of MODS. Septic shock and encephalopathy(60%) followed by ARDS/ALI(49%) was the main cause of PICU admissions. Typical rash, generalised lymphadenopathy, low platelet counts, hypoalbuminemia and hyponatremia are significantly associated with MODS due to ST. Patients were treated with either Doxycycline alone or in combination with Azithromycin. Mean time to complete defervescence was 32 hours after first dose of Doxycycline. Outcome was excellent with a mortality of only 3%.

Conclusion:

Scrub typhus is an important cause of MODS and PICU admissions in this part of the World, but prognosis is better than MODS due to other etiologies.

WSPID19-0161 Oral Presentations Oral Presentations 3: Emerging and Zoonotic Infections

INCIDENCE OF CONGENITAL ZIKA SYNDROME AND OTHER CAUSES OF SEVERE MICROCEPHALY IN CANADA; RESULTS FROM THE CANADIAN PEDIATRIC SURVEILLANCE PROGRAM

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Background:

In 2015 and 2016, there was a large outbreak of Zika virus (ZIKV) that spread through the Americas. Concurrently, an increase in severe microcephaly (SM) was noted in Brazil and other countries that was causally linked to congenital ZIKV infection. Though the vectors of ZIKV are not endemic to Canada, concern existed regarding travel-acquired infection leading to congenital zika syndrome (CZS).

Aims:

To establish the baseline rate and causes, including CZS, of SM in Canada.

Methods:

Two prospective surveillance studies were conducted through the Canadian Pediatric Surveillance Program (CPSP): 1) SM (June 2016-May 2018) and 2) CZS (March 2017-February 2019). The CPSP actively gathers data monthly from >2,800 paediatricians. Any paediatrician who reported a case of SM and/or CZS meeting case definition(s) was asked to complete a detailed questionnaire.

Results:

39 cases of SM were reported. The minimum incidence of SM in Canada was 5.1/100,000 births. The mean gestational age, weight, and head circumference at birth were 38 (±2.4SD) weeks, 2151 (±932SD) grams, and 28.9 (± 2.0SD) cm. Seven cases (18%) had a confirmed genetic disorder identified. The remaining 32 cases had suspected causes including 7 (22%) genetic and 25 (78%) ischemic, infectious, unknown, or other causes. Six mothers traveled to areas with ZIKV transmission during pregnancy. Fewer than 5 cases were due to confirmed CZS.

Conclusion:

This study establishes the minimum baseline incidence of SM in Canada. In spite of a large international outbreak and frequent travel by Canadians to countries endemic for ZIKV, CZS was a rare diagnosis in Canada.

WSPID19-0166 Oral Presentations Oral Presentations 3: Emerging and Zoonotic Infections

CLIMATE CHANGE AND INFECTIOUS DISEASES IN VIETNAM – A LITERATURE REVIEW

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Background:

Climate change poses a great threat to human health by changing the patterns of infectious diseases (IDs). Vietnam is highly vulnerable to climate change and also experiences numbers of IDs outbreaks every year.

Aims:

This study conducted a literature review on climate change and IDs to provide a better understanding of climate threat to human health in Vietnam and promote climate change adaptation to protect health.

Methods:

A literature review was conducted using Scopus as a primary search tool, followed by the PubMed database, with keywords including climate change, climate variables, factors, infectious diseases, dengue, intestinal diseases, respiratory diseases, hand-foot-mouth diseases, and Vietnam. References of related documents were also checked to avoid any missing document.

Results:

Twenty-one papers were included in the review, covering climate-related factors associated with four major infectious diseases in Vietnam namely dengue, intestinal diseases, respiratory diseases, and hand-foot-mouth diseases. Those studies provided scientific evidence of the associations between climate factors including temperature, humidity, and rainfall and infectious diseases in Vietnam, resulting in increased risks of hospitalizations. Consequently, increases in the burden for the health care system in Vietnam are expected in the context of climate change.

Conclusion:

Climate change poses a great threat to health, especially in developing countries such as Vietnam. The classic prevention and control measures for IDs need to be updated regarding the risks posed by climate change. On the other hand, climate change adaptation in Vietnam needs to involve health in its targets.

WSPID19-0269 Oral Presentations Oral Presentations 3: Emerging and Zoonotic Infections

THE STOP ('SEE, TREAT, PREVENT') TRIAL: REDUCING CHILDHOOD IMPETIGO AND SCABIES WHERE BURDEN IS HIGHEST

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Background:

Impetigo and scabies prevalence in Australian Aboriginal children are among the highest worldwide, leading to serious complications including chronic kidney and rheumatic heart disease.

The SToP ('See, Treat, Prevent') Trial aims to decrease skin infection prevalence in the remote Kimberley region of Western Australia. It is a cluster randomised controlled trial with a stepped-wedge design involving four community clusters with three intervention activities: enhanced diagnostic training, evidence-based treatment, and prevention through health promotion and environmental health.

Aims:

During baseline surveillance in two East Kimberley clusters, we aimed to assess impetigo and scabies prevalence in school-aged children.

Methods:

Assessors were trained using a visual diagnostic tool to survey the head, neck, arms and legs of all attending, consented children for skin infections, during school visits.

Results:

136 students aged 3 – 15 years were assessed; 53 in cluster 1 and 83 in cluster 2. Impetigo prevalence was high: 50.7% (69/136) overall; 39.6% (21/53) in cluster 1 and 57.8% (48/83) in cluster 2. Most children had <5 purulent or crusted sores. Many had flat-dry sores indicating prior infection. Only 1/136 (0.8%) case of scabies was clinically identified. Pediculosis 25/136 (18.4%) and tinea 13/136 (9.5%) rates were also high.

Conclusion:

Baseline skin infection prevalence was high, and similar to previously reported rates. Reducing the skin infection burden in remote-living Aboriginal children, as the SToP Trial aims to do, is urgently needed.

Acknowledgements:

We acknowledge the participating communities, schools and research partners (Kimberley Aboriginal Medical Services, WA Country Health Services-Kimberley and Nirrumbuk Environmental Health Services).

WSPID19-0487 Oral Presentations Oral Presentations 3: Emerging and Zoonotic Infections

CLINICAL, LABORATORY PROFILES OF CLINICAL DIPHTHERIA AND PREDICTORS OF OUTCOME IN DIPHTHERIA OUTBREAK 2017-2018 IN JAKARTA AND TANGERANG, INDONESIA

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Background:

Diphtheria remains a public health problem in Indonesia. Last 2017 diphtheria outbreak was reported in Jakarta and Tangerang with significant number of fatal cases.

Aims:

To analysed characteristics of clinical diphtheria and their role as predictors of mortality.

Methods:

A retrospective cohort study has been held using medical record at six referral hospital in the Province of Jakarta and Tangerang District January 2017 to 31 August 2018. All children between the age group of 1-18 years old admitted with diagnosis of clinical diphtheria formed the study group. Demographic data, clinical features, immunization status, complication and laboratory profiles were analyzed. Variables were compared to determine the predictors of mortality. Chi square test and cox regression were done to asses association between variables and outcome.

Results:

Among 283 patients hospitalized with clinical diphtheria, the highest incidence (37.8%) was seen in children 5-9 years age group and majority (88.7%) were incomplete diphtheria immunization. Mild fever (95.4%) and sore throat (91.9%), were common presentations, followed by cough (53.7%), 'bullneck' (24.0%), stridor (19.1%) and hoarseness (3.2%). Median of leukocyte count was 13000 cell/mm3 and thrombocyte count was 280000 cell/mm3. Ten patients died (case fatality ratio 3.5%), all of them were unimmunized children. Hoarseness, stridor and 'bullneck' were correlated with mortality (all with p=0.000). Complication of myocarditis occurred in 15.9% patients and this condition contributed to the death.

Conclusion:

Immunization status, 'bullneck', stridor, hoarseness and myocarditis complication remain classical predictors for mortality during this recent outbreak. Efforts should focus on improving primary immunization and booster coverage across children age group.

WSPID19-0084 Oral Presentations Oral Presentations 4: Viral Infections

CLINICAL AND MOLECULAR EPIDEMIOLOGY OF RSV ACUTE LOWER RESPIRATORY INFECTION IN UNDER-FIVE CHILDREN: A STUDY FROM INDIA

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Background:

Globally, RSV is an important cause of morbidity and mortality in children. It is important to understand RSV epidemiology before vaccine can be launched in developing countries like India.

Aims:

To study the clinical and molecular epidemiology of RSV causing acute lower respiratory infection (ALRI) in under-five children from India.

Methods:

This observational study spanned over three-year in a tertiary care teaching hospital of Eastern India. Nasal and throat swabs were collected, and RT-PCR performed using a SuperScript II one-step RT-PCR Platinum Taq kit (two multiplex nested RT-PCRs used). Genotyping was done by nucleotide sequencing of the C-terminal region of the glycoprotein (G) gene.

Results:

A total of 206 children included after meeting the eligibility criteria. RSV only was isolated in 63 (30.6%) cases, and in co-infection with other viruses and bacteria in 14 (9.8%) cases. Nineteen children died (case fatality rate, 24.7%); mostly with underlying co-morbid condition, and having co-infection with other viruses. Most cases occurred in the month of January, March, July, August, and November. RSV-B dominated over RSV-A. Phylogenetic analysis showed all RSV-A sequences belonging to NA1 genotype, and 5 of the sequences showed the novel 72 nucleotide duplication and clustered into the newly designated ON1 genotype. All RSV-B sequences were clustered into the BA (BA9 and 10) genotype.

Conclusion:

RSV constitutes a significant viral cause of ALRI in children under-five in Eastern India. The genotypes of RSV-A (NA1 and ON1) and RSV-B (BA9 and BA10) were circulated.

WSPID19-0145 Oral Presentations Oral Presentations 4: Viral Infections

PROGRESS OF A TETRAVALENT DENGUE VACCINE CANDIDATE EFFICACY TRIAL IN HEALTHY 4 TO 16 YEAR-OLD CHILDREN IN ENDEMIC REGIONS

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Background:

Dengue is a WHO top ten global health threat for which there is an urgent medical need for a safe and effective vaccine, particularly for dengue-naïve individuals.

Aims:

To present efficacy results from an ongoing phase 3 trial of a tetravalent live-attenuated dengue vaccine candidate (TAK-003) in 8 endemic Asian and Latin American countries.

Methods:

Subjects were randomized 2:1 (stratified by age range and region) to receive two doses of TAK-003/placebo three months apart.

Those with febrile illness were tested for virologically-confirmed dengue (VCD) by serotypespecific RT-PCR.

The primary endpoint was efficacy in preventing VCD induced by any dengue serotype 30 days post-second vaccination until the end of Part 1.

The secondary endpoints were efficacy against individual serotypes, by baseline serostatus, and efficacy in preventing hospitalization and severe dengue at the end of part 2.

Part 1 was complete after accrual of 120 confirmed VCD cases and a 12-month follow-up postsecond vaccination. Part 2 has additional 6 months of follow-up.

Results:

Of 20,071 children given at least one dose of TAK-003 [KV1] or placebo, 19,021 were included in the per protocol analysis.

This includes 27.7% who were seronegative at baseline.

The study met its primary endpoint with an overall vaccine efficacy of 80.2% (95% confidence interval [CI], 73.3 to 85.3).

Conclusion:

TAK-003 demonstrated overall high efficacy against symptomatic dengue. Analysis after Part 2 will assess the secondary endpoints of efficacy by serotype, serostatus and disease severity.
WSPID19-0163 Oral Presentations Oral Presentations 4: Viral Infections

NEONATAL HERPES SIMPLEX INFECTION RATES IN QUEENSLAND ABOVE NATIONAL AVERAGE

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Background:

National neonatal surveillance for HSV disease suggests the incidence of HSV disease may be higher in Queensland (QLD) than in other Australian States. We sought to investigate this via a retrospective 13-year evaluation of statewide laboratory and clinical records.

Aims:

To evaluate the longitudinal epidemiologic and clinical trends of laboratory confirmed HSV infection and disease in infants in Queensland.

Methods:

All positive PCR HSV 1 and 2 results were obtained from Queensland pathology providers for infants aged 0-3 months from January 1st 2005- December 31st 2017. Clinical data were obtained from patient records.

Results:

172 infants were identified: 121(70.3%) had HSV 1 infection. Of 104(60.5%) infants with signs of HSV disease, 76(73.1%) were neonates (\leq 28 days of age) (incidence 9.1 (95% CI, 7.0-11.5) per 100 000 live births) and 28(26.9%) were young infants (aged 29-90 days) (3.7 (95% CI, 2.4-5.4) per 100 000 live births). The annual incidence of neonatal HSV disease significantly increased over the study period (p <0.05). Of 76 (52.8%) neonates with HSV disease 58(76.3%) presented with skin, eye, mouth (SEM) disease,17(22.4%) HSV encephalitis and 11(14.5%) disseminated disease. Young infants presented with HSV SEM disease (21, 75.0%) or HSV encephalitis (6, 21.4%). Cesarean delivery was not completely protective with 22% neonates born via this route. Mortality was 11.5%; 10 attributable to HSV disease and all neonates.

Conclusion:

Statewide laboratory data confirm the incidence of neonatal HSV disease in QLD is almost three times the national incidence. Further research is being undertaken to explore reasons for this change and implications for practice.

WSPID19-0479 Oral Presentations Oral Presentations 4: Viral Infections

RISK FACTORS FOR MEASLES MORTALITY AMONG PEDIATRIC PATIENTS AT A PUBLIC TERTIARY HOSPITAL

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Background:

An increasing number of measles associated death in a public tertiary hospital was noted. WHO sets a case fatality rate of < 1% for any epidemic. In this hospital, the CFR was remarkably increased to 6%.

Aims:

To determine the risk factors associated with measles mortality among patients ages 3 months to 13 years.

Methods:

A case-control design was utilized. Cases were patients who fulfilled the WHO case definition for measles who died while controls were those who survived. For each case, four controls were randomly selected. Univariate analysis was done for categorical variables using chi-square test and independent T test for continuous variables to compute for odds ratio and confidence interval. Variables found to be statistically significant were included in the multivariate logistic regression analysis.

Results:

Univariate analysis identified risk factors for measles mortality as respiratory rate > 50 cycles per minute, heart rate > 156 beats per minute, branny desquamation, severe acute malnutrition, oxygen saturation < 94%, hemoglobin < 100 g/dL, leukocyte count \ge 18 x 10/L and, neutrophil count \ge 70%. Multivariate regression logistic analysis revealed, age, number of days from onset of symptoms to admission, PCAP C, altered sensorium, and lymphocyte count of \le 19%, as independent risk factors.

Conclusion:

In an epidemic situation, measles patients less than 1 year with mild to moderate pneumonia should be hospitalized for prompt management. PCAP D remains the strongest risk factor for

measles mortality, lymphopenia and altered sensorium are strong indicators that are useful in assessing the risk for mortality among measles patients.

WSPID19-0513 Oral Presentations Oral Presentations 4: Viral Infections

SUSCEPTIBILITY TO INFECTIOUS DISEASES FOLLOWING MEASLES DURING A 3 YEAR OBSERVATION PERIOD - A CASE CONTROL STUDY

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Background:

Measles virus infection leads to a transient, but significant immunosuppression. In developing countries, this translates to an increased non-specific mortality whereas its effects in developed countries are less clear.

Aims:

To investigate whether children hospitalized with measles would have a higher frequency of hospital admissions due to other infectious diseases thereafter than children who did not have measles.

Methods:

A matched-control study with measles cases between 2000 and 2015 in Switzerland and controls. Cases were identified by ICD-10 discharge diagnoses for measles and/or keyword search and matched to 2 controls by time of hospitalization, age, and sex. All hospitalizations <3 years after original admission, infectious or non-infectious in origin, were identified in cases and controls.

Results:

113 cases (56% males), mean age 9.0 years (range 2 weeks - 17.8 years) and 196 controls were identified. Twelve rehospitalizations due to an infectious disease occurred in 11 cases and 6 in 6 controls (episode rates 0.106 versus 0.031 per person; ratio 3.47; 95% confidence interval [CI], 1.20-11.3; p=0.012) over 3 years of follow-up. Of these, 9 and 3 occurred in cases and controls, respectively, during year 1 (ratio 5.20 [95% CI, 1.30-29.88; p=0.012).). The risk for rehospitalisation was not increased in years 2 and 3. Infectious diseases following measles affected various organ systems, were neither particularly severe nor fatal and revealed no specific pattern.

Conclusion:

The increased risk for non-specific infectious disease hospitalizations supports the concept of immunologic amnesia after measles. Universal immunization against measles provides additional benefit beyond protection against measles itself.

WSPID19-0518 Oral Presentations Oral Presentations 4: Viral Infections

DIFFERENCES IN AGE-SPECIFIC ATTACK RATES, COMPLICATIONS AND FATALITY IN CHILDREN DURING A WIDE-SPREAD OUTBREAK OF CHIKUNGUNYA FEVER IN SUDAN

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Background:

The first ever outbreak of Chikungunya Fever in Sudan occurred between 31 May 2018 and on 30 March 2019

Aims:

To describe the occurrence, spread, magnitude and the responses to the outbreak among children under 15 years of age

Methods:

Sources of data included data from the national sentinel disease surveillance, laboratory investigation findings on the outbreak, including genetic sequencing, summary of the discussions at the Emergency Operation Center (EOC), and situation and field visit reports

Results:

The disease surveillance system reported 48,763 cases of Chikungunya Fever. The Chikungunya virus was of Southeast Asian origin. Almost all cases (99.7%) of Chikungunya Fever in the country occurred in Kassala and Red Sea States of eastern Sudan. Sporadic cases and small outbreaks of Chikungunya Fever were reported from seven other States. All the reported sporadic cases were epidemiologically linked to the outbreak in eastern Sudan. In the Red Sea State 19.9% of Chikungunya Fever occurred among children under 15 years of age; whereas in Kassala State, 19.1. Most of the complications and death during this outbreak occurred in children specially the age group between 5-15 years. No fatal cases were reported in Kassala State. Yet; more than 18 fatal cases were identified among children aged 5-15 years in the Red Sea State

Conclusion:

This outbreak was the largest outbreak of Chikungunya Fever ever occurred in Africa and the Eastern Mediterranean Region. There were difference in Age-specific Attack Rates and case-fatality in Kassala and Red See states

WSPID19-0533 Oral Presentations Oral Presentations 4: Viral Infections

CLINICAL FEATURES OF BOCAVIRUS INFECTIONS IN CHILDREN

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Background:

Human bocavirus has been detected in children with acute lower respiratory tract infection, but its clinical importance is not well defined.

Aims:

The aim of this study was to analyze the demographic, clinical and laboratory data of patients with bocavirus infections.

Methods:

Patients with bocavirus detected by PCR in respiratory secretions between January 2016 to December 2018 in Ankara University Medical School, Department of Pediatric Infectious Diseases Ward were evaluated retrospectively.

Results:

Bocavirus was detected in 73 (4.1%) of 1739 patients whose nasopharyngeal aspirates were examined by multiplex PCR. A total of 73 patients were included in the study. 48 (65.8%) out of 73 patients were male. 90.4% of the patients were clinically diagnosed younger than 5 years. 46.6% of the patients were presented in winter season. Bronchiolitis with or without pneumonia (80%), was the most common presentation of bocavirus illness. Concomitant infection of bocavirus with another virus was observed in 41 (56.1%) of the patients. The most common viral co-pathogen was rhinovirus (n=17), followed by respiratory syncytial virus, metapneumovirus, influenza virus, parainfluenza virus, coronavirus, adenovirus and enterovirus. Clinical, laboratory and radiological findings were similar in single bocavirus and multiple virus infections. Some patients required advanced life support, but the overall outcome was quite good.

Conclusion:

Bocavirus is an important pathogen in children under 5 years of age. It mainly affects respiratory tract but it can also be causes different clinical manifestations. Bocavirus co-infection with other

respiratory viral pathogens is commonly seen but this does not make a significant difference on the clinical picture.

WSPID19-0096 Oral Presentations Oral Presentations 5: Global Child Health

PREVALENCE AND HEALTHCARE-SEEKING BEHAVIOR OF DIARRHEA AMONG CHILDREN IN EASTERN CHINA: RESULTS FROM A REPEATED COMMUNITY-BASED CROSS-SECTIONAL STUDY

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Background:

Diarrhea remains a serious challenge to public health globally. Considerable data gaps still exist regarding the features of diarrhea occurrence in different seasons, and its related health care seeking behavior in China.

Aims:

To assess the prevalence of and healthcare seeking behavior for diarrhea, a repeated crosssectional study was conducted in Suzhou, Jiangsu Province, China.

Methods:

Between October 2012 and February 2015, a total of 14608 guardians of children younger than 5 years old were interviewed through nine rounds of telephone surveys. Occurrence of acute diarrhea (defined as more than 3 passages of watery, loose, bloody, or mucoid stools within a 24 h period) in the previous month prior to the interview and the related health care seeking practice were investigated.

Results:

The estimated monthly prevalence of diarrhea was 3.74% (95% CI: 3.44-4.07), yielding to an incidence rate of 0.50 episodes per person-year. The highest prevalence was found among children aged 6moths-1 year old (7.69%, 95% CI: 6.59-8.90) and in autumn (5.42%, 95% CI: 4.69-6.22). The proportion of individuals with diarrhea who sought healthcare was 71.30% (95% CI: 67.31-75.06) and the proportion was significantly lower among children aged 2-3 years





Conclusion:

Diarrhea continues to impose a considerable burden on the community and healthcare system in urban city of China. And the occurrence of diarrhea varied by season and age group. Further research and analysis combing the specific pathogens and population based survey is needed to better estimate the burden of diarrhea among children in China.

WSPID19-0132 Oral Presentations Oral Presentations 5: Global Child Health

ASSOCIATION BETWEEN THE NASOPHARYNGEAL DENSITY OF RESPIRATORY VIRUSES AND BACTERIA AND CHILDHOOD PNEUMONIA: FINDINGS FROM A CASE-CONTROL STUDY IN A HIGHLY VACCINATED SETTING

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Background:

Respiratory viruses and bacteria are frequently detected in the nasopharynx of asymptomatic children, making it difficult to understand their actual contribution to pneumonia.

Aims:

We aimed to determine and compare the nasopharyngeal density of respiratory pathogens between children with and without pneumonia to understand if pathogen density could be used to define pneumonia.

Methods:

Nasopharyngeal swabs (NPS) were collected from hospitalized pneumonia cases at Princess Margaret Hospital (PMH) and form contemporaneous age-matched controls at PMH outpatient clinics and a local immunization clinic in Perth, Australia. The density (copies/mL) of eight respiratory viruses and bacteria in NPS were determined using quantitative polymerase-chain-reaction. The association between pathogen density and disease status was examined using logistic regression. Area under receiver-operating-characteristic (AUROC) curves were assessed to determine optimal discriminatory pathogen density cutoffs.

Results:

Through May'15 to October'17, 230 pneumonia cases and 230 controls were enrolled. Median nasopharyngeal density for any respiratory pathogen was not substantially higher in cases than controls. After adjusting for demographics and densities of other pathogens, the odds of being a case increased by 6, 3 and 2 times for every log10 copies/mL density increase for respiratory syncytial virus, human metapneumovirus and influenza A virus, respectively. The AUROC

curves were <0.70 for each pathogen, suggesting poor case-control discrimination based on pathogen density.

Conclusion:

We found the nasopharyngeal density of respiratory pathogens was not significantly higher in pneumonia cases than controls, however, the odds of being a case increases with increased density for some viruses. The utility of pathogen density, alone, in defining pneumonia was limited.

WSPID19-0273 Oral Presentations Oral Presentations 5: Global Child Health

SURVIVAL OF GROUP A STREPTOCOCCUS IN SUB-OPTIMAL STORAGE CONDITIONS: OPPORTUNITIES FOR REMOTE SETTINGS WITHOUT LABORATORY INFRASTRUCTURE J. Pickering¹, T. Barnett¹, J. Carapetis¹, A. Bowen¹

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Background:

Group A *Streptococcus* (*S. pyogenes*) is an important cause of childhood morbidity and mortality. Our clinical studies in remote Western Australia aim to document the prevalence of *S. pyogenes* pharyngitis and impetigo. Skim-milk-tryptone-glucose-glycerol broth (STGGB) is a validated, WHO-recommended, storage medium for subsequent molecular analysis of *S. pneumoniae*, but SGGB (lacking tryptone) is also used to reduce costs. Rapid deep freeze (-80°C) is desirable for pharyngeal carriage studies investigating bacterial density, but collection, transport and storage of clinical specimens at -80°C is challenging in remote settings where transport delays (~7 days) are common.

Aims:

We sought to model the impact of our storage limitations to guide future studies of *S. pyogenes* density.

Methods:

One ATCC strain and 6 clinical *S. pyogenes* isolates were selected to represent different clinical origins (skin, pharynx, blood) and *emm* types (4, 12, 28, 49, 53, 89). Dilutions of each strain were inoculated into SGGB to mimic typical clinical specimen concentration ranges (104 -108 CFU/ml). Each spiked sample was refrigerated at 4°C and then frozen at -80°C on day 0, 1, 5, and 8. All frozen samples were subsequently plated out for viable count on blood agar.

Results:

Regardless of concentration or day of freezing, there was no significant decline in *S. pyogenes* density over 8 days.

Conclusion:

There were no indications that sub-optimal storage will impact future studies investigating *S. pyogenes* density; this is important for logistically challenging settings without immediate freezer

access. Future work will employ quantitative-PCR for molecular interrogation of *S. pyogenes* stored in SGGB.

WSPID19-0308 Oral Presentations Oral Presentations 5: Global Child Health

MORTALITY AMONG ADOLESCENTS AND YOUTH BORN WITH HIV RECEIVING ANTIRETROVIRALS: A REPEATED CROSS-SECTIONAL STUDY IN THAILAND

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Background:

Mortality among adolescents born with HIV and receiving antiretrovirals has been shown to be higher than in younger children. However, mortality trends remain unknown while they enter adulthood.

Aims:

The objectives of this analysis were to assess the mortality among adolescents born with HIV when entering adulthood in Thailand and the causes of death.

Methods:

Teens Living With Antiretrovirals (TEEWA-1) study was a cross-sectional survey, conducted in 2010-2012, among all adolescents born with HIV, aged 12-19 years and receiving antiretrovials in 20 public hospitals across Thailand. Adolescents socio-demographic information and HIV clinical/treatment history were obtained from their caregivers/legal guardians and from their medical records, respectively. In 2018-2019, a second cross-sectional survey, TEEWA-2, was conducted to assess the outcomes of the adolescents who had participated in TEEWA-1.

Results:

As of June 1, 2019, among 926 adolescents included in TEEWA-1, 787 (85.1%) had participated in TEEWA-2 after a median period of 6.7 years [IQR: 5.8-7.5]. Overall, 88 (11%) participants had died, 131 (17%) were lost-to-follow-up, 568 (72%) were alive and in active care. Median age at death was 19.7 years [17.9 - 21.0]. Overall mortality rate was 18.0 per 1000 Person-Years [95%CI:14.3-21.8]. It increased significantly after 19 years (Figure). Causes of death were known for 70% of the cases: 87% were related to HIV disease progression and 13%



Conclusion:

In addition to antiretrovirals, specific interventions are critically needed to prevent the high mortality among adolescents born with HIV when becoming young adults, in particular support for adherence during transition to adult care.

WSPID19-0359 Oral Presentations Oral Presentations 5: Global Child Health

GLOBAL DIVERGENCE OF ANTIFUNGAL PRESCRIBING PATTERNS: AN ANALYSIS OF PAEDIATRIC SURVEY DATA FROM 23 COUNTRIES

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Background:

Knowledge gaps about antifungal use in paediatric population must be addressed to formulate and monitor effective response at global level.

Aims:

We aimed to reflect global antifungal prescription in children using GARPEC data.

Methods:

The GARPEC (Global Antimicrobial Resistance, Prescribing and Efficacy Among Neonates and Children) study included an international point prevalence survey of antimicrobial use. Data collected comprised the number of admitted children with an antimicrobial prescription on a given day, demographic and clinical data. We described antifungal prescribing (under ATC code J02) amongst neonates (aged ≤30 days) and children (aged >30 day and <19 years).

Results:

A total of 13,410 antimicrobial prescriptions were included from 23 countries and 65 hospitals. From all the antimicrobial prescriptions 1,048 (7.8%) were systemic antifungals. The proportion of antifungal use compared to other antimicrobials was higher in high income countries (HICs) compared to middle and low income countries (LMICs) (OR=2.1). 871/10,340 children (8.4%) and 142/2,588 neonates (5.5%) received at least one AF. AF use was more frequently associated with the presence of at least one underlying condition compared to other antimicrobial classes [1,019 (97.2%) vs 9,422 (76.2%), p<0.05]. Fluconazole was the most common antifungal prescribed, 480 (45.8%), followed by amphotericin B, 274 (26.2%). When we analysed the use of the different drugs per country income, fluconazole entailed 299/750 (39.9%) in HICs compared to 133/201 (66.2%) in LMICs.

Conclusion:

Antifungal data from LMICs remain limited. Differences in prescribing patterns urge for more detailed studies taking into account the rational of prescribing, it might also reflect differences in access.

WSPID19-0449 Oral Presentations Oral Presentations 5: Global Child Health

NEONATAL BCG VACCINATION IS ASSOCIATED WITH BETTER CHILD SURVIVAL THAN DELAYED BCG VACCINATION FOR BOTH TB-EXPOSED AND TB-UNEXPOSED CHILDREN: AN OBSERVATIONAL STUDY

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Background:

WHO recommends BCG vaccination at birth in countries with high tuberculosis (TB) burden. Unfortunately, BCG vaccination is often delayed. Since BCG protects against TB and also has beneficial non-specific effects, delays in BCG vaccination may be important even among TBunexposed children.

Aims:

To assess the potential effect of neonatal BCG on mortality between 28 days and 3 years of age for TB-exposed children and TB-unexposed children

Methods:

Bandim Health Project runs an urban Health and Demographic Surveillance site in Guinea-Bissau with registration of mortality, vaccination status and TB cases. We followed children between 28 days and 3 years of life. Children residing in the same house as a TB case were classified as TB-exposed from 3 months prior to case registration to the end of follow-up. Using Cox-proportional hazards models with age as underlying time scale, we compared mortality of children with and without neonatal BCG between October 2003 and September 2017.

Results:

Among the 39,421 children who entered the analyses, 3,022 (8%) had observation time as TB-exposed. In total, 84% of children received neonatal BCG. Children with neonatal BCG had lower mortality both in TB-exposed (adjusted Hazard Ratio (HR): 0.57 (0.26-1.27)) and in TB-unexposed children (HR: 0.57 (95% CI: 0.47-0.69)) than children without neonatal BCG.

Conclusion:

Neonatal BCG vaccination was associated with lower mortality among both TB-exposed and TB-unexposed children, consistent with neonatal BCG vaccination having beneficial non-specific effects. Interventions to increase timely BCG vaccination are urgently warranted.

WSPID19-0115 Oral Presentations Oral Presentations 6: Bacterial Infections in Different Organ Systems - II

INFANT RISK AND ESTIMATED INCIDENCE OF PERTUSSIS INFECTION IN VIETNAM

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Background:

In Vietnam, pertussis is reported in infants based on clinical diagnosis and infection in older children and adults may be underdiagnosed. DwPT vaccine (4 times) coverage has been reported to be over 95% in Nha Trang, Vietnam.

Aims:

We aimed to investigate the potential risk of pertussis infection among infants and incidence of pertussis infection in the general population in Vietnam.

Methods:

(1) Cord blood samples from newborn babies born at Khanh Hoa General Hospital between August 2017 and July 2018, and (2) blood samples from randomly selected age-stratified subjects from the community in Nha Trang were collected and tested for anti-Bordetella pertussis toxin (PT) IgG by ELISA. We determined the protective level as anti-PT IgG \geq 10 IU/ml and infection in the previous 12 months and 6 months as anti-PT IgG \geq 62.5 IU/ml and \geq 125 IU/ml, respectively.

Results:

(1) 1570 newborn babies were enrolled and tested for anti-PT IgG. The geometric mean titer (GMT) was 9.98 IU/ml (95%CI 9.44-10.55) and 54% did not have protective level of the antibodies at birth. (2) 483 individuals aged \geq 3 to 55 years of age were enrolled in a community sero-survey and had anti-PT IgG GMT of 10.2 (9.2-11.3). Community sero-survey suggested that 2-10% and 0-5.5% were estimated to have pertussis infection in previous 12 months and 6 months, respectively.

Conclusion:

Half of neonates are at risk for pertussis infection at birth and pertussis infection was estimated to occur commonly among children and young adults. New vaccination strategy should be considered.

WSPID19-0160 Oral Presentations Oral Presentations 6: Bacterial Infections in Different Organ Systems - II

PERSISTENT HELICOBACTER PYLORI INFECTION, GASTRIC DAMAGE AND ATOPIC DISEASE IN APPARENTLY HEALTHY SCHOOL-AGED CHILDREN: A CASE-CONTROL STUDY

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Background:

H. pylori causes gastric cancer in adults. While acquired largely during childhood, the role of infecion in gastric damage and in reduction of atopic disease in children is largely unknown.

Aims:

Determine if persistent H. pylori infection in apparently healthy school-aged children is associated with an increase in clinical, laboratory/biomolecular findings of gastric damage, and/or decrease in atopy.

Methods:

Chilean children from three cohorts were enrolled until reaching 80 persistently infected and non-infected matched controls for a nested case-control analysis and followed for > 3 years. Gastrointestinal and atopy associated clinical findings were recorded every 4 months including examinations by a gastroenterologist and an allergist. A stool sample for H. pylori antigen detection at each visit and a blood sample were collected for anti H pylori IgG and laboratory/biomolecular markers of gastric damage; iron profile, btg3 gene expression, serum

cytokines, pepsinogen I&II and TIMP-1, and for allergy: total IgE and serum cytokines, in addition to a skin prick test.

Results:

At a median age of 7.2 years infected children had significantly higher anti-pylori IgG seroconversion rates, serum concentrations of pepsinogenII and IgE, and lower incidence of hypersensitivity to cat dandruff and multiple food allergens. Gastritis was detected in 4/4 infected vs 0/3 non-infected children referred for endoscopy. Other clinical and biomolecular findings were similar.

Conclusion:

H. pylori infection in school aged children is not innocuous as it is associated with an increase in pepsinogenII, a biomarker of gastric inflammation, and with gastritis in a subset, while associated with a minor decrease in atopic features.

WSPID19-0286 Oral Presentations Oral Presentations 6: Bacterial Infections in Different Organ Systems - II

MOLECULAR DETECTION OF THE CAUSES OF EARLY-ONSET NEONATAL SEPSIS AT A RURAL KENYAN HOSPITAL

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Background:

Infections are amongst the leading causes of neonatal mortality, with about 80% deaths occurring in developing countries. Early onset neonatal sepsis (EOS) typically begins prior to or during delivery and may be rapidly fatal. Blood culture remains the gold standard test for diagnosis of infection but is limited by low sensitivity. Modern molecular assays may have higher sensitivity for pathogen detection but potentially more susceptible to contamination. There is a paucity of evidence on the aetiology of EOS in resource-poor countries to guide preventive and treatment strategies.

Aims:

To detect pathogens in cord blood comparing neonates hospitalised with possible serious bacterial infection (pSBI) within the first 48 hours after birth and neonates who remained well.

Methods:

Neonates born at Kilifi County Hospital (KCH) between March 2011-March 2016 had cord blood collected in a surveillance project. In a nested case control study, cord blood samples were tested using custom TaqMan Array Cards molecular assay (Thermo Fisher, USA) and results analysed using ViiA[™] 7 version 1.2.3 and STATA version 15.0.

Results:

603/15,409 (3.9%) neonates born at KCH were included in this analysis. *Escherichia coli/Shigella* (risk ratio [RR] 1.4 [95% confidence interval (CI) 1.2-1.5]), *Klebsiella pneumoniae* (1.4 [1.1-1.7]) and Ureaplasma (1.3 [1.1-1.5]) were associated with an increased risk for pSBI.

Klebsiella oxytoca and *Pseudomonas aeruginosa* were common in both groups and considered likely contaminants.

Conclusion:

The study shows promise for pathogen detection in cord blood prior to onset of signs of sepsis, requiring further validation. Ureaplasma appears to be an important pathogen, as found in other studies.

WSPID19-0534 Oral Presentations Oral Presentations 6: Bacterial Infections in Different Organ Systems - II

NASOPHARYNGEAL MICROBIOME PROFILES ARE ASSOCIATED WITH RESPIRATORY AND GASTROINTESTINAL INFECTIONS IN A RURAL RISK POPULATION OF AMERINDIAN CHILDREN

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Background:

The increasing recognition of the microbiome as potential modulator of disease emphasizes the importance of identifying differences in microbiome profiles between children worldwide to inform antibiotic treatment choices. Whilst most microbiome studies have been done in westernised populations, RTI and GII prevalence rates are highest in rural populations where microbiome profiles are likely to be different.

Aims:

We performed next-generation sequencing of 209 respiratory samples of indigenous Venezuelan children under 5 years of age to i) characterize the nasopharyngeal microbiome of children living under extremely rural conditions, ii) assess the association between the nasopharyngeal microbiome and the presence of RTIs and GIIs and iii) study the relation between the nasopharyngeal microbiome upon pneumococcal (PCV) vaccination and post-vaccination antibody titers.

Methods:

We combined random forest, differential abundance testing and linear regression analyses.

Results:

Microbial community composition was strongly correlated with RTIs (p=0.018) or GIIs (p=0.001). Several bacteria not commonly found in westernised populations were associated with health, such as *Schlegelella* (log2(FC) = 3.99) and *Acinetobacter* (log2(FC) = 2.38). *Klebsiella* was associated with disease, both RTIs (log2(FC) = 5.48) and GIIs (log2(FC) = 7.20). The correlation between bacteria and vaccine response was limited.

Conclusion:

The respiratory microbiome was dominated by bacteria related to the unique living environment of rural Venezuelan children. Interestingly, the microbiome was not only substantially different in children with a respiratory infection but also in those with a gastrointestinal infection, which has not been described before and supports the view of a bi-directional interplay between the respiratory and intestinal microbial and mucosal environments.

WSPID19-0541 Oral Presentations Oral Presentations 6: Bacterial Infections in Different Organ Systems - II

EXTENSIVELY DRUG-RESISTANT SALMONELLA TYPHI EMERGING FROM AN OUTBREAK IN PAKISTAN AND THE IMPLICATIONS FOR EMPIRIC ANTIMICROBIAL CHOICES

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Background:

Typhoid fever still inflicts a great health burden worldwide with 21 million cases and 216,000 deaths per year. Many centers rely on third generation cephalosporin as empiric treatment for suspected typhoid. An outbreak of extensively drug-resistant (XDR) typhoid fever with resistance to all first-line antibiotics including ceftriaxone is currently emerging from Pakistan . More than 9,000 cases have so far been reported including several outbreak-related ones in travellers returning to United Kingdom, United States and Denmark. Klemm et al. identified the ceftriaxone-resistant gene located on an IncY plasmid which was likely acquired from an ESBL-producing *E coli*.

Aims:

To describe the cases of XDR typhoid presenting to The Hospital for Sick Children, Toronto, Canada and the antimicrobial management.

Methods:

Medical health records were retrospectively reviewed of all children with confirmed ceftriaxoneresistant *Salmonella* Typhi isolated from blood cultures. Whole genome sequencing (WGS) was carried out on one isolate to determine identity to Pakistan outbreak-strain.

Results:

Four cases of XDR typhoid were identified, all of whom had recently returned from Pakistan. All isolates were resistant to first-line antibiotics including ceftriaxone, but no resistance to carbapenem or azithromycin. All patients were initially started on empiric ceftriaxone. We carried out WGS on the isolate belonging to our first case which was identical to the Pakistan outbreak-strain.

Conclusion:

We confirmed the first XDR typhoid case in Canada, originating from the outbreak in Pakistan. Clinicians must be aware of the ongoing outbreak and consider adapting empiric therapy for travellers returning from Pakistan.

WSPID19-0055 Oral Presentations Oral Presentations 7: Antimicrobial Stewardship and Infection Control

ANTIBIOTIC USE IN CHILDREN HOSPITALSED WITH PNEUMONIA IN CENTRAL VIETNAM: A PROSPECTIVE STUDY

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Melbourne- Australia, Centre for International Child Health, Melbourne, Australia ⁵The Children's Hospital at Westmead- The University of Sydney- Australia, Discipline of Child and Adolescent Health- Sydney Medical School, Sydney, Australia

Background:

Excessive use of antibiotics has been noted in children diagnosed with 'pneumonia' in Vietnam, but antibiotic use in hospitalised children is poorly documented.

Aims:

We investigated antibiotic use in children admitted with pneumonia in central Vietnam.

Methods:

A prospective descriptive study of all children <5 years of age admitted with 'pneumonia' to the Da Nang Hospital for Women and Children over a 12-month period, assessing antibiotic use and health care costs.

Results:

Of 2,911 patients included in the analysis, 176 (6%) were considered by the admitting clinician to have severe pneumonia; 87 (3.0%) were admitted to the intensive care unit (ICU). Preadmission antibiotic use was common (1462; 50.2%). Nearly all children (2853; 98.0%) received antibiotics in hospital; 17.3% (493/2,853) via the intravenous (IV) route. IV antibiotics were given to 89.2% (157/176) of those considered to have severe pneumonia and 12.6% (336/2,677) without severe pneumonia. Only 23.7% (117/493) of children on IV antibiotics were stepped down to an oral antibiotic. The median duration of antibiotic use was 6 days for 'pneumonia' and 7 days for 'severe pneumonia'. Cephalosporins were generally preferred as first line treatment, although oral cefuroxime demonstrated a higher rate of oral to IV switch than amoxicillin or amoxicillin/clavulanic acid (139/1436; 9.7% vs 54/1066; 5.1%, p<0.001).

Conclusion:

Most hospitalised children received oral antibiotics, but those receiving IV antibiotics usually completed a 'full treatment course'. Utilizing IV to oral step down, as appropriate, can reduce unnecessary hospital admissions and shorten length of hospital stay to improve patient care and deliver major cost savings.

WSPID19-0248 Oral Presentations Oral Presentations 7: Antimicrobial Stewardship and Infection Control

THE DIAGNOSTIC VALUE OF METAGENOMIC NEXT-GENERATION SEQUENCING FOR IDENTIFYING PATHOGEN IN PAEDIATRIC INFECTIOUS DISEASES

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Background:

There is few studies on the diagnostic value of metagenomic next-generation sequencing (mNGS) for paediatric infectious diseases.

Aims:

To analyse the value of mNGS in the pathogenic diagnosis of paediatric infectious diseases.

Methods:

Specimens of suspected infected children admitted to the Department of Infectious Diseases of Beijing Children's Hospital from May 1, 2017 to December 31, 2018 were collected and sent for pathogen detection by clinical microbiology tests and mNGS. Taking the clinical microbiology tests as the gold standard, the value of mNGS for identifying pathogen was analysed.

Results:

A total of 439 samples were collected from 341 patients. 68.5% samples were cerebrospinal fluid, 26.0% samples were blood, 3.0% samples were pus, 1.1% samples were lymph node tissue, 1.1% samples were broncholavage fluid, 0.9% samples were bone marrow, 2.1% samples were other type samples. 27.6% samples had positive results by mNGS, 9.6% samples had positive results by clinical microbiology tests. The difference in pathogenic positive rate for culture and mNGS was statistically significant (27.6% VS. 9.6%, X2=47.017, P=0.000). The coincidence rate between mNGS and clinical microbiological tests was 76.5%. Taking clinical microbiology tests as the gold standard, the sensitivity and specificity of mNGS for pathogen were 73.8% (95%*Cl*:57.7%-85.6%) and 77.3% (95%*Cl*:72.8%-81.3%), respectively. The positive predictive value and negative predictive value of mNGS were 25.6% (95%*Cl*:

18.3%-34.5%) and 96.5% (95%*Cl*: 93.7%-98.2%), respectively. The positive rate of mNGS in the pus specimen was 100% (13/13).

Conclusion:

mNGS has high sensitivity and specificity for pathogen identification in pediatric infectious diseases.
WSPID19-0349 Oral Presentations Oral Presentations 7: Antimicrobial Stewardship and Infection Control

COMPARISON OF CULTURE AND MOLECULAR-BASED METHODS FOR DETECTION OF MYCOBACTERIUM ABSCESSUS COMPLEX AND ASSOCIATED RESISTANCE

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Background:

Mycobacterium abscessus complex (MABSC), is a group of pathogenic bacteria of growing clinical concern due to its extreme antimicrobial resistance (AMR). Chronic MABSC infections in Cystic Fibrosis (CF) patients are associated with increased lung transplant risk and accelerated lung function decline and are extremely difficult to treat.

Aims:

Current culture-based methods for detection of MABSC and associated AMR have long turnaround times (typically weeks) and are prone to overgrowth by other bacteria, limiting the ability to inform effective and timely treatment. This prompted us to explore using rapid culture-independent molecular methods for MABSC detection and associated AMR directly in clinical samples.

Methods:

PCR-based methods for MABSC diagnosis and detection of key macrolide and amikacin resistance mechanisms were adapted for direct detection in respiratory samples. A total of 449 samples from local CF patients, of which 28% were children, were tested. Results from molecular methods (MABSC detection, AMR characterisation, and turnaround times) were compared to standard culture.

Results:

For MABSC detection, the molecular methods detected 16/18 MABSC culture-positive samples (sensitivity 89%). Direct resistance characterisation results were concordant for 14/16 samples where both culture and PCR results were available, with the discordant results attributed to mixed resistance infections detected by PCR only. Approximate turnaround times were 2 days for molecular methods compared to 3 weeks for culture.

Conclusion:

Molecular methods can detect most MABSC infections and characterise associated AMR mechanisms, and have the potential for use as an adjunct to culture to rapidly inform MABSC treatment in CF patients.

WSPID19-0439 Oral Presentations Oral Presentations 7: Antimicrobial Stewardship and Infection Control

ANTIMICROBIAL NON-SUSCEPTIBILITY AMONG SALMONELLA TYPHI AND PARATYPHI A ISOLATES – PRELIMINARY RESULTS FROM SEAP PROJECT

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Background:

Enteric fever is among the most common bacteremic illnesses in South Asia. Growing nonsusceptibility to antibiotics especially ceftriaxone and fluoroquinolones, severely limit the treatment options. SEAP is a large, multi-center, prospective surveillance capturing data on the burden of enteric fever and the antimicrobial susceptibility of the isolates, in Bangladesh, Nepal, and Pakistan.

Aims:

To describe the frequency of antimicrobial resistance against Salmonella Typhi and Paratyphi from the SEAP surveillance sites in Pakistan, Nepal and Bangladesh

Methods:

We analyzed antimicrobial non-susceptibility of Typhi and Paratyphi A, isolated from hospitals and selected diagnostic centers of SEAP sites, during September 2016 to March 2019.

Results:

6,652 Typhi and Paratyphi A were isolated from the SEAP network; Bangladesh (n=4,009), Nepal (n=1,249), and Pakistan (n=1,394). The majority of isolates were Typhi (86%) in all three countries. The rate of MDR isolates among Salmonella Typhi was low in Bangladesh (18%) and Nepal (2%), contrast to Pakistan (74%). Non-susceptibility to fluoroquinolone among Typhi isolates was high in all three countries (93% to 97%). In addition, there is an ongoing outbreak of XDR strains (non-susceptibility to third generation cephalosporin and fluoroquinolone, along with MDR) in Pakistan; 79% of Typhi strains isolated since September 2018 are XDR. Among Paratyphi A isolates, r proportion for MDR was low (<1%) and 2% were non-susceptible to ceftriaxone.

Our results show low proportion of MDR isolates among Typhi and Paratyphi A isolates and high rates of non-susceptibility to fluoroquinolone across the sties in Bangladesh and Nepal. However, the evolution of XDR strains in Pakistan is alarming

WSPID19-0450 Oral Presentations Oral Presentations 7: Antimicrobial Stewardship and Infection Control

GLOBAL POINT PREVALENCE SURVEY OF ANTIMICROBIAL CONSUMPTION AND RESISTANCE (GLOBAL-PPS): 2015,2017,2018 RESULTS OF ANTIMICROBIAL PRESCRIBING FOR PAEDIATRIC COMMUNITY-ACQUIRED AND HEALTHCARE-ASSOCIATED PNEUMONIA

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Background:

Antimicrobials are commonly prescribed drugs in paediatrics and neonates. Their widespread overuse contributes to significant antimicrobial resistance. Understanding prescribing practices is paramount in antimicrobial stewardship.

Aims:

This study provides global estimates of antimicrobial use for paediatric community-acquired pneumonia (CAP) and healthcare-associated pneumonia (HAP) by United Nations (UN) regional group.

Methods:

A standardized method for surveillance of antimicrobial use in hospitals was used to assess variations in antimicrobial prescribing globally. PPSs were conducted in 2015, 2017, 2018 in 711 unique hospitals of 73 countries worldwide. The survey included all inpatients receiving an antimicrobials on the day of the PPS. A web-based application was used for data-entry, validation and reporting as designed by the University of Antwerp (www.global-pps.com). BioMérieux provided unrestricted funding support for the survey.

Results:

35199 paediatric and neonatal patients were admitted of which 14723 (41.8%) were treated with at least one antimicrobial agent. 3133 (8.9%) patients were treated for pneumonia (80.7% CAP, 19.3% HAP) (table 1).

Table 1. Global antimicrobial use for CAP and HAP.

| | Total patients | Number on antimicrobials | Number of CAP patients | Number of HAP patients | % patients receiving antimicrobials for CAP | % patients receiving antimicrobials for HAP |
|------------------------|-------------------|-----------------------------|------------------------------|------------------------------|--|--|
| Africa | 3860 | 2535 | 296 | 86 | 11.7 | 3.4 |
| East & South Asia | 7396 | 4035 | 1062 | 211 | 26.3 | 5.2 |
| East Europe | 2000 | 504 | 45 | 52 | 8.9 | 10.3 |
| North America | 2607 | 727 | 74 | 33 | 10.2 | 4.5 |
| North Europe | 2770 | 1019 | 140 | 22 | 13.7 | 2.2 |
| South America | 3320 | 1185 | 192 | 81 | 16.2 | 6.8 |
| South Europe | 3947 | 1670 | 234 | 59 | 14.0 | 3.5 |
| West & Central Asia | 3725 | 1615 | 291 | 30 | 18.0 | 1.9 |
| West Europe | 5306 | 1357 | 189 | 32 | 13.9 | 2.4 |
| Total | 35199 | 14723 | 2527 | 606 | 17.2 | 4.1 |

The ten most commonly prescribed antimicrobials for CAP and HAP are shown in table 2.

Table 2. The ten most commonly prescribed antimicrobials for CAP and HAP. Data shown as proportional use of antimicrobials for CAP and HAP.

| Antimicrobial | CAP (%) | Antimicrobial | HAP (%) | |
|---------------------------------|---------|-----------------------------------|---------|--|
| Ceftriaxone | 17.1 | Meropenem | 13.8 | |
| Ampicillin | 11.0 | Amikacin | 11.0 | |
| Amikacin | 7.8 | Vancomycin | 9.7 | |
| Cefuroxime | 7.2 | Piperacillin and enzyme inhibitor | 9.3 | |
| Cefotaxime | 7.2 | Ampicillin | 5.5 | |
| Amoxicillin | 5.0 | Cefotaxime | 4.6 | |
| Gentamicin | 5.0 | Ceftazidime | 4.6 | |
| Azithromycin | 4.6 | Ceftriaxone | 3.9 | |
| Ampicillin and enzyme inhibitor | 4.0 | Gentamicin | 3.9 | |
| Meropenem | 3.1 | Ciprofloxacin | 3.6 | |

Conclusion:

There is wide variation in the proportion of children receiving antimicrobials for CAP and HAP across UN regions with the highest CAP in East and South Asia and the highest HAP in East Europe. Work is needed to reduce the incidence of HAP across the globe.

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WSPID19-0003 E-Poster Presentations E-Poster discussion - Stream 1A: Fungal and Arboviral Infections

EFFECTIVENESS OF COMPLEMENTARY MEDICINE, QUERCETIN, COMBINED WITH STANDARD OF CARE IN THE TREATMENT OF PATIENT WITH ACUTE DENGUE FEVER: AN OPEN LABEL RANDOMIZED CONTROLLED TRIAL

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Background:

Dengue fever is a significant public health problem. There are no effective antiviral agents against dengue virus therefore the treatment remains supportive. Quercetin, found naturally in vegetables and fruits have been reported to boost thrombopoiesis and erythropoiesis. However, there are limited studies to prove beneficial effects of quercetin as a complementary medicine in the treatment of dengue fever in children.

Aims:

Evaluate the beneficial effect of quercetin, plus standard of care in the treatment of acute dengue fever. The primary endpoint shall be the time of improvement of hemoconcentration, thrombocytopenia, resolution of clinical symptoms, and shorter hospital stay.

Methods:

An open label randomized controlled clinical trial was conducted in a tertiary hospital to patients age 7 to 18 with acute dengue fever. Randomly into 2 groups either receiving the quercetincontaining capsule taken for 3 consecutive days plus standard of care (experimental group) or standard of care alone (control group) for acute dengue fever. Serial blood tests were taken within the treatment period

Results:

The study involved 64 patients. Results showed significant increase in the platelet counts of the experimental group (p value <0.001). There was also noted significant difference with regards to the resolution of symptoms (p value <0.05) and in the total number of hospital stay among the same group (p value <0.001). No incidence of infection or untoward effects on both treatment groups.

Complementary medicine, quercetin combined with standard of care may be beneficial and has no adverse effects in the management of patient with acute dengue fever.

WSPID19-0097 E-Poster Presentations E-Poster discussion - Stream 1A: Fungal and Arboviral Infections

SPECIES DISTRIBUTION AND ANTIFUNGAL SUSCEPTIBILITY OF CANDIDA SPECIES ISOLATED FROM BLOODSTREAM INFECTIONS IN PEDIATRIC PATIENTS; A LABORATORY BASED ANALYSIS

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Background:

Although, *C.albicans* remains the most common species among adult patients, *C.parapsilosis* have been reported as the most common agent among pediatric patients with candidemia in some reports. Antifungal susceptibility characteristics can vary among different *Candida* species. Therefore, to know the epidemiology and antifungal resistance characteristics of *Candida* bloodstream infections is important for appropriate management of their infections.

Aims:

To evaluate retrospectively the species distribution and antifungal susceptibility test result of candidemia agents among pediatric patients in a tertiary care hospital over a 7-year period.

Methods:

We investigated the blood culture results of our Microbiology Laboratory in University Hospital during a 7-year period (2012-2019). Antifungal susceptibility testing for fluconazole, voriconazole, posaconazole, caspofungin, anidulafungin and amphotericin B was performed by using reference broth microdilution method or commercial gradient diffusion test.

Results:

A total of 205 blood culture results in different episodes of 133 pediatric patients were analyzed. seventy-four percent of episodes was in the children under 2 years of age. The most common species was *C.parapsilosis* (39%). The species distribution of *Candida* was significantly different in pediatric patients compared to adults (p=0.003) and did not relate with the age, gender and hospital units (p>0.5). Almost all of our isolates were susceptible or wild type to the tested antifungals, one *C. glabrata* and one *C.parapsilosis* isolates resistant to fluconazole.

Candidemia is an important threat for pediatric patients, particularly effects children under 2 years of age. *C.parapsilosis* is the predominant species among pediatric patients and remarkable antifungal resistance is not in question in our laboratory for now.

WSPID19-0122 E-Poster Presentations E-Poster discussion - Stream 1A: Fungal and Arboviral Infections

RISK FACTORS FOR CANDIDEMIA IN NEONATES WITH SEPSIS

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Background:

Candidemia has turned into a growing concern in the Neonatal intensive care units (NICU) with current advances in critical care and overuse of wide spectrum antibiotics. Prematurity, low birth weight, invasive interventions, prolonged use of antimicrobials, and extended length of stay in the NICU are probable risk factors for candidemia.

Aims:

To find out the risk factors for candidemia in babies admitted to tertiary care hospital of a developing country with neonatal sepsis.

Methods:

This case control study was conducted in the Neonatal Unit of the department of Paediatrics, King Edward Medical University/Mayo Hospital, Lahore, from January 2017 to June 2018. Total of 350 neonates having sepsis according to the clinical case definition were enrolled in this study by non-probability convenient sampling. Blood culture for bacteria on first day and for candida on fifth day was sent. Patients were started antimicrobial therapy as per institutional policy on admission. All patients were followed for risk factors for development of candidemia. Data was analyzed by SPSS 22.0. Odds ratio and logistic regression were used to determine the magnitude of risk factors.

Results:

Among 350 septic neonates, 36 isolates were positive for *Candida spp.* This constituted 10.2% of candidemia among septic neonates. Necrotizing enterocolitis was found to be the significant risk factor for development of candidemia.

Necrotizing enterocolitis was found to be the statistically significant risk factor for development of candidemia among hospitalized septic neonates.

WSPID19-0134 E-Poster Presentations E-Poster discussion - Stream 1A: Fungal and Arboviral Infections

DENGUE ASSOCIATED HEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS: MISSING COMPLICATION OF COMMON INFECTION IN THAILAND

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Background:

Hemophagocytic lymphohistiocytosis (HLH) is a severe and life-threatening condition causing multisystem involvement such as cytopenia, hepatosplenomegaly and death. Dengue is one of the leading cause of HLH.

Aims:

To demonstrate clinical manifestations and treatment outcome of dengue-associated HLH in children.

Methods:

This was a case series of patients with dengue fever complicated with HLH during 2017-2018 in Nakhon Nayok province, Thailand.

Results:

We reported 3 children with dengue fever who subsequently developed HLH diagnosed by HLH-2004 criteria. All patients had history of high grade fever for more than 7 days and developed splenomegaly with progressive anemia and leukopenia. Their laboratory results are shown in the table.

Table Laboratory results of 3 patients with dengue associated HLH.

| | Case 1 3-year-old girl | Case 2 14-year-old boy | Case 3 10-year-old girl |
|---------------------------------------|---------------------------|---------------------------|----------------------------|
| Lowest hemotocrit (%) | 25.4 | 34.4 | 17.2 |
| Lowest leukocyte count (x103cell/mm3) | 4.6 | 1.8 | 1.2 |
| Peak serum ferritin (ng/mL) | >40,000 | >40,000 | >40,000 |
| Lowest serum fibrinogen (mg/dL) | 162.5 | 149.3 | 193.2 |
| Fasting serum triglyceride (mg/dL) | 205 | 136 | 205 |

Bone marrow aspiration revealed increased hemophagocytic activity which compatible with HLH

in all 3 cases. They dramatically responded after prescribing dexamethasone 10 mg/m2/day and intravenous immunoglobulin (IVIG) 500 mg/kg. They became defervescence within a day and recovered from cytopenia, hyperfibrinogenemia and hyperferritinemia 3 days after treatment.

Conclusion:

It is essential to identify dengue-associated HLH from severe dengue hemorrhagic fever. Prolong fever exceeding 7 days, splenomegaly and worsening cytopenia should be the clues for diagnosis.

WSPID19-0304 E-Poster Presentations E-Poster discussion - Stream 1A: Fungal and Arboviral Infections

MICAFUNGIN FOR THE PREVENTION AND TREATMENT OF INVASIVE FUNGAL INFECTIONS (IFIS) IN PAEDIATRIC PATIENTS IN ASIA: RESULTS FROM THE ERADICATE STUDY

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Background:

The safety and efficacy of micafungin in paediatric patients have been demonstrated in clinical trials, but real-world experience in this population remains limited.

Aims:

To evaluate the real-world use of micafungin for the prevention/treatment of IFIs in paediatric patients in Asia.

Methods:

ERADICATE was a prospective, non-interventional study conducted in 22 centres across five regions in Asia. Safety (primary endpoint) and efficacy (secondary endpoint) data were collected from paediatric patients (<18 years) prescribed micafungin for the prophylaxis/treatment of IFI, as determined by the treating physician (12/2016–05/2018), from the first micafungin dose to 4-weeks post-treatment discontinuation.

Results:

Data were available from 120 patients (proven, n=10; probable, n=4; possible, n=21; no signs of IFI, n=85); 65.0% male; median (range) age 7 (0–17) years. Most received prophylactic micafungin (63.3%). Two non-serious moderately severe ADRs of diarrhoea were reported by

one (0.8%) patient (Table). SAEs occurred in 20 (16.7%) patients. Eight (6.7%) patients died. No SAES or deaths were assessed as treatment-related. 92.5% patients reported ≥1 AE; 86.7% reported ≥1 TEAE; 15.8% had a severe TEAE. Abnormal hepatic function (AE of special interest) occurred in two (1.7%) patients. The most common AEs were diarrhoea (34.2%), pyrexia (30.0%), and vomiting (22.5%). Treatment success (complete/partial) and mycological response (eradication/presumed eradication, patients with probable/proven IFI) were observed in 80.8% and 71.4% patients, respectively.

| Table: Overview of adverse events and deaths in the ERADICATE study | | | | | | |
|---|------------------------|--|--|--|--|--|
| | N=120 n (%), events | | | | | |
| All AEs | 111 (92.5) 1030 | | | | | |
| TEAEs* | 104 (86.7) 706 | | | | | |
| AEs with onset >3 days after the end of treatment | 82 (68.3) 323 | | | | | |
| ADRs ⁺ | 1 (0.8) 2 | | | | | |
| SAEs ⁺ | 20 (16.7) 31 | | | | | |
| Drug-related [§] SAEs [‡] | 0 | | | | | |
| AEs of special interest | 2 (1.7) 2 | | | | | |
| AEs leading to withdrawal of treatment | 0 | | | | | |
| Death [¶] | 8 (6.7) 12 | | | | | |
| ADRs leading to death | 0 | | | | | |

Number of patients (n), percentage of patients (%), and number of events are shown. * TEAE was defined as any AE that occurred within 3 days after the end of therapy. [†] ADR was defined as a TEAE with a relationship to study drug of 'probable' or missing. [‡] Includes SAEs that were upgraded by the Sponsor based on a review of the Sponsor's list of Always Serious terms, if applicable. [§] Includes AEs where the relationship to study drug was reported as 'probable'. If the relationship was missing, the AE was considered as drug-related. ^{II} Includes the preferred terms 'Hepatic function abnormal', 'Renal impairment', 'Infusion site reaction', 'Haemolysis', 'Hypersensitivity', and 'Injection site reaction'. [¶] All reported deaths after the first study drug administration.

ADR, adverse drug reaction; AE, adverse event; SAE, serious adverse event; TEAE, treatment-emergent adverse event.

Conclusion:

Micafungin, when prescribed for prophylaxis/treatment of IFIs in paediatric patients, demonstrated favourable safety and efficacy in real-world practice in Asia.

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WSPID19-0445 E-Poster Presentations E-Poster discussion - Stream 1A: Fungal and Arboviral Infections

NEUROLOGICAL MANIFESTATIONS IN BRAZILIAN CHILDREN BY YELLOW FEVER VIRUS (WILD TYPE)

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Background:

Yellow fever virus (YFV) is a virus of the genus *Flavivirus*, family *Flaviviridae*, transmitted by mosquito bites of the genus *Aedes*, *Haemagogus* and *Sabethes*. In 2016, the YFV emerged in the Brazilian extreme east, causing the largest outbreak of wild yellow fever observed in the last decades. From December 2016 to April 2018, 1904 cases of wild-type yellow fever were confirmed in Brazil, of which 589 (31%) progressed to death.

Aims:

To describe five cases of children with YFV meningoencephalitis that occurred in the State of Minas Gerais, Brazil between December 2016 and February 2019.

Methods:

All children with neurological manifestations between 2016 and 2019 collected CSF for propaedeutic and viral research by RT-PCR for YFV.

Results:

YFV was detected by CSF RT-PCR of five (6%) among 83 children who presented neurological manifestations during the outbreak. None of the children presented classic clinical manifestations of yellow fever such as bleeding or impaired hepatic function. However, they presented severe neurological manifestations and 40% of them died in few days after initial symptoms. Among the neurological symptoms presented by the children, 80% had convulsive seizures with altered level of consciousness, intracranial hypertension and one infant had only a bulging fontanel. CSF analysis showed discrete pleocytosis (8-18 cells), normal glucose (glucose: 51-117mg / dl) and normal to high protein (22-434mg / dl).

The report of these cases shows YFV neurotropism and reinforces the importance of surveillance and expansion of vaccine coverage to prevent new outbreaks of yellow fever.

WSPID19-0447 E-Poster Presentations E-Poster discussion - Stream 1A: Fungal and Arboviral Infections

MENINGOENCEPHALITIS BY ZIKA VIRUS IN CHILDREN

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Background:

Zika Vírus (ZIKV) is a single-stranded RNA virus of the *Flavivirus* genus and the *Flaviviridae* family. ZIKV infection during pregnancy has been associated with fetal loss, microcephaly, subcortical calcifications, cerebellar hypoplasia, congenital contractures, arthrogryposis and retinal changes. However, there are few reports of neurological manifestations secondary to acquired ZIKV infection among pediatric patients.

Aims:

To describe thirteen cases of children with acquired ZIKV meningoencephalitis that occurred in the State of Minas Gerais, Brazil between 2015 and 2018.

Methods:

All children with neurological manifestations between 2015 and 2018 collected CSF for propaedeutic and viral research by RT-PCR for ZIKV.

Results:

ZIKV was detected by CSF RT-PCR of thirteen (5%) among 261 children who presented neurological manifestations between 2015 and 2018. The neurological manifestations presented by these children during hospitalization were: encephalitis (53,8%), meningitis or bulging fontanel (38.5%) and seizures (38,5%). Hypotonia, walk disability and neuropathic pain were observed in 15.4% of the children and 7.7% evolved with muscular weakness or paresis and hemodynamic instability. None of the children evolved to death, but 30% were discharged with anticonvulsants due to persistent seizures and abnormalities in EEG and imaging tests. A child who progressed with signs and symptoms of Guillain-Barre post encephalitis maintained walk disability for one year post infection.

The detection of ZIKV by qPCR in the cerebrospinal fluid was essential for the diagnosis of these children, allowing the clinical follow-up for the early detection of possible neurological sequelae in the long term.

WSPID19-0496 E-Poster Presentations E-Poster discussion - Stream 1A: Fungal and Arboviral Infections

THE CLINICAL IMPACT OF FLUCONAZOLE RESISTANCE ON BLOODSTREAM INFECTION DUE TO CANDIDA PARAPSILOSIS IN CHILDREN

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Background:

Although *Candida albicans* has been the most isolated *Candida* spp , the incidence of *Candida parapsilosis* has been rising.

Aims:

We aimed to investigate the incidence, risk factors and outcome of *Candida* parapsilosis fungemia in children and to compare with the episodes caused by a fluconazole (FLC) susceptible strain.

Methods:

Fungi were isolated from the blood cultures using the BacktAlert system (bioMérieux, France). They were identified with conventional mycological methods and their assimilation profiles were determined with ID 32 C (bioMérieux, France) between 2008-2014; and identified by MALDI TOFF MS (bioMérieux, France) between 2014-2018.

Results:

From January 2008 to December 2017, 112 episodes due to *C. parapsilosis* were determined. Seven patients were excluded due to lack of patient chart. Of the 105 episodes, fluconazole resistance rate was 40% and the prevalence increased from ½ (50%) to 9/14 (64. 3%) from 2008 to 2017 . The median age of the patients was 4. 95 year (±5.85). The proportion of male patients was 56. 3%. *C. parapsilosis* was isolated from the patients mostly admitted to Pediatric Surgery Department (n: 29, 25. 9%) and followed by Gastroenterology (n:19, 17%). The most common underlying disease was intestinal failure in FLC-resistant group



and distribution in FLC-resistant and FLC sensitive episodes was summarized in Figure 1 . Attributable mortality was 9.5% and the distribution of deaths according to underlying disease was summarized in Figure



Conclusion:

C. parapsilosis fungemia has been associated with gastrointestinal colonization and bloodstream transmission, contributing to it's higher frequency in patients with intestinal failure and abdominal surgery.

WSPID19-0150 E-Poster Presentations E-Poster discussion - Stream 1A: Infections in the Immunocompromised Host and Transplant Patient I

CYTOMEGALOVIRUS DISEASE IN RETINOBLASTOMA PATIENTS: THE ROLE OF PREEMPTIVE SCREENING

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Background:

Cytomegalovirus (CMV) disease is underrecognized in retinoblastoma children.

Aims:

This study analyzed the burden of CMV infection and disease in children with retinoblastoma receiving chemotherapy.

Methods:

Preemptive screening for CMV infection among retinoblastoma patients was implemented in October 2013. Ninety and 70 patients before and after the screening strategy, respectively, were included in this study. CMV infection was determined by antigenemia assay or real-time PCR. CMV disease was diagnosed by tissue biopsy, culture, or ophthalmic examination.

Results:

Before the screening period, 12/90 (13.3%) were diagnosed with CMV infection. Among them, 6 (50.0%) developed CMV disease, and 2 patients died of CMV pneumonia. During preemptive screening, 18/70 patients (25.7%) were documented with 36 episodes of CMV infections during chemotherapy. In patients with CMV infection, age at chemotherapy tended to be younger (9 vs. 15 months, P = 0.101) and fewer were seronegative prior to chemotherapy (5.6% vs. 44.2%, P = 0.003). Patients who started chemotherapy at <12 months of age received preemptive antiviral therapies for high CMV Ag titer or viral load more often than those started at ≥ 12 months (72.7% vs. 14.3%, P = 0.05). Two patients developed CMV retinitis, but there were no fatal cases. Preemptive therapy along with active CMV screening significantly reduced the development of CMV disease among CMV infected patients, from 50.0% to 11.1% (P = 0.034).

Retinoblastoma children can experience significant morbidity and even mortality from CMV infection during the course of chemotherapy. Preemptive screening and appropriate antiviral therapy can reduce the development of CMV end-organ disease.

WSPID19-0199 E-Poster Presentations E-Poster discussion - Stream 1A: Infections in the Immunocompromised Host and Transplant Patient I

A DESCRIPTIVE ANALYSIS OF PRIMARY IMMUNODEFICIENCIES IN A CHILDREN'S HOSPITAL IN SOUTHERN INDIA

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Background:

Primary immunodeficiency diseases (PIDs) are a group of diverse genetic disorders, which affects either the development, and/or function of the immune system which predisposes a child to variety of bacterial, viral, fungal and protozoal infections and non infective complications. Early diagnosis and intervention will decrease long-term morbidity and mortality.

Our study describes a single centre experience of Primary Immunodeficiencies.

Aims:

Our study aims to analyze the spectrum of PIDs, clinical features, infective syndromes and outcomes and to identify the common clinical clues that were present, which could help in early identification PIDs.

Methods:

61 children were diagnosed to have PID's over a period of 2 years (JAN 2017- FEB 2019) either by: · Immunoglobulin assay Flow-cytometry Clinical exon sequencing· NBT test· Bone Marrow histopathology

Records were analyzed for demography, clinical features, infective syndromes and outcomes

Results:

33 boys and 28 girls (M: F 1.1:1) were diagnosed to have PID's. The mean age of first clinical presentation and diagnosis was 16.96 ± 25.88 and 28.32 ± 37.98 months respectively. 36 (59%) children had consanguinity, 28 (46%) had FTT and 17 (28%) had sibling deaths. Persistent pneumonia and diarrhoea was the most common presenting features. SCID was the most common PID (n-15) followed by CGD (n-8). 31 cases (50.8%) are on follow up, 19 children (32.8%) were lost to follow up and 9 children (15%) succumbed to infections and 2 underwent BMT.

Conclusion:

Consanguinity, FTT, sibling deaths were the most important clues to identify PID. A 12 months window period warrants sensitisation for early diagnosis.

WSPID19-0343 E-Poster Presentations E-Poster discussion - Stream 1A: Infections in the Immunocompromised Host and Transplant Patient I

RESPIRATORY VIRAL INFECTIONS DURING EPISODES OF FEVER IN CHILDREN UNDERGOING HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT)

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Background:

Children undergoing HSCT can present respiratory viral infections (RVI) during fever episodes. There are few data about clinical outcomes in RVI and compared to bacterial infections in this population.

Aims:

To determine clinical outcome of RVI, compared to bacterial infections, in children with HSCT.

Methods:

Prospective study, children≤18 years with cancer and HSCT admitted with fever at National Bone-Marrow-Transplant Center (Hospital Calvo Mackenna), Chile(April-2016 to May-2019). Clinical examination, laboratory tests, blood cultures, nasopharyngeal-sample for multiplex-PCR (20 respiratory pathogens (Filmarray-Respiratory-Panel©) and viral quantification) was performed. The following outcomes were evaluated:upper/lower respiratory tract disease(RTD), admission to PICU/mechanical ventilation, mortality and antimicrobial withdrawal.

Results:

From a total of 75 episodes of fever in 30 children, 32(43%) were RVI (+), 13(17%) bacterial infections (BI) and 30(40%) were negative. Median age in RVI was 8,5 years, 63% male gender and the median of days after HSCT was 120 (compared to 14 days in BI). At admission, 75% of RVI-episodes had respiratory symptoms and the median of absolut-lymphocite-count was 749/mm3. The most frequent respiratory viruses detected were: rhinovirus 56%(median viral-load 33.400/mL), coronavirus 19%(40.800/mL), parainfluenza 16% and RSV (428.450/mL). At discharge 30/32(94%) of RVI presented upper/lower-RTD and 22/32(69%) lower-RTD (compared to 31% and 31% in BI,respectively;p<0.001). PICU admission was 9% in RVI and 23% in BI(p=0.33). No mortality was observed and antimicrobial withdrawal was 25% in RVI and 7% in BI (p=0.24).

Conclusion:

RVI were frequently detected in fever episodes after HSCT, with 94% of upper/lower-RTD and no mortality. RVI detection might help to rationalize the use of antimicrobials in this population.

WSPID19-0070 E-Poster Presentations E-Poster discussion - Stream 1A: Sepsis, Bacteremia and Endocarditis

ETIOLOGY AND PROGNOSTIC FACTORS OF COMMUNITY-ACQUIRED SEPSIS IN ETHIOPIAN CHILDREN

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Background:

There is a scarcity of data on pediatric community-acquired sepsis (CAS) in Ethiopia.

Aims:

We sought to determine the etiology, the role of *Streptococcus pneumoniae* as a cause of CAS, antibiotic resistance, and prognostic factors in children with suspected CAS in Addis Ababa, Ethiopia.

Methods:

A prospective observational study of 101 children aged 0-15 yrs with suspected CAS was performed. Blood culture, antibiotic susceptibility testing, PCR of the autolysin (*lytA*) gene from whole blood samples and typing *S. pneumoniae* by sequencing the *cps*B gene and using Quellung reaction were performed.

Results:

The prevalence of culture-positive sepsis was 14.9 % (15/101). S. *pneumoniae* (26.7%) and *Klebsiella pneumoniae* (26.7%) were the most common causes of sepsis. The four isolated pneumococci belonged to serotypes 19A (n = 2), 33C and 12F. All *K. pneumoniae* isolates were resistant to penicillin and amoxicillin and half were resistant to gentamicin and ceftriaxone. The case-fatality rate was 11.9% (12/101). In univariate analysis, age of 28 days - 1year (OR, 0.1; 95% CI, 0.01-0.98; p, 0.048), body temperature of 37.5 0C - 38.5 0C (OR, 0.2; 95% CI, 0.05-0.82; p, 0.026) were associated with mortality. Presence of underlying comorbidity (aOR, 6.8; 95% CI, 1.59-28.7; p, 0.009) was an independent predictor of mortality.

Streptococcus pneumoniae and *Klebsiella pneumoniae* were the major causes of CAS and there was a high rate of antibiotic resistance among isolates. Presence of underlying comorbidity was a predictor of mortality. Large scale studies on etiology, antibiotic resistance and prognostic factors of CAS in Ethiopia are warranted.

WSPID19-0095 E-Poster Presentations E-Poster discussion - Stream 1A: Sepsis, Bacteremia and Endocarditis

INVASIVE BACTERIAL DISEASES IN YOUNG INFANTS IN RURAL GAMBIA: A POPULATION-BASED SURVEILLANCE STUDY

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Background:

Invasive bacterial diseases (IBD) cause significant morbidity and mortality in young infants globally. There are limited population-based data on the burden of IBD in sub-Saharan Africa.

Aims:

To determine the incidence, etiology and outcome of IBD in young infants in rural Gambia.

Methods:

We conducted a standardized, population-based surveillance for IBD among infants aged <91 days, residing within Basse and Fuladu West Health and Demographic Surveillance Systems (BHDSS and FWHDSS), in rural Gambia between March 2011 and December 2017. Children admitted to health facilities within the study areas had conventional microbiological investigations. All admitted children were eligible for blood culture. The primary endpoint was IBD defined as isolation of pathogenic bacteria from blood, cerebrospinal fluid, lung or pleural aspirate.

Results:

2875 infants were admitted; 2668 had microbiological investigations and 174(7%) cases of IBD were detected. The incidence of IBD in infants aged <91 days was 74/1000 person-years (95%Cl 63 – 86). In infants aged 30 to <91 days, incidence of IBD was 34/1000 person-years (95%Cl 25 – 44). In neonates, the incidence of IBD was 163/1000 person-years (95%Cl 132 – 195) or 2.0/1,000 live births (95%Cl 1.7 – 2.4). The most common bacteria causing IBD were *Staphylococcus aureus* (43%), *Escherichia coli* (16%) and *Streptococcus pneumoniae* (10%). The case-fatality ratios of IBD in infants aged <91 days; 30 to <91 days and neonates were 28%(95%Cl 21-35); 22%(95%Cl 12-35) and 30%(95%Cl 22-39) respectively.

Conclusion:

IBD is common in young infants in rural Gambia with high case-fatality. Maternal or neonatal vaccination strategies are needed to prevent IBD in young infants.

WSPID19-0172 E-Poster Presentations E-Poster discussion - Stream 1A: Sepsis, Bacteremia and Endocarditis

STAPHYLOCOCCUS EPIDERMIDIS IN BLOODSTREAM INFECTION: THE CLINICAL IMPLICATION IN PAEDIATRIC CARE

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Background:

One of the predominant coagulase-negative staphylococci (CoNS) isolated from bloodstream infection is Staphylococcus epidermidis. However, it is rarely considered as a true pathogen in paediatric blood culture and broadly classified as CoNS without speciation or its clinical significance being assessed for effective healthcare delivery.

Aims:

This retrospective bacteraemic study was conducted for children under five attending Federal Medical Centre, Keffi, a tertiary care hospital in north-central Nigeria from 2013 to 2016.

Methods:

Twenty-five (25) Staphylococcus epidermidis strains were identified out of 73 coagulasenegative staphylococci from positive paediatric blood culture that met the inclusion criteria for the study. Biofilm formation was carried out using the quantitative microtitre plate method and amplification of the intercellular adhesion (icaA) gene. Methicillin-resistance was detected using cefoxitin disk agar diffusion method. Molecular detection of phenol-soluble modulin mec (psmmec) gene was done for the biofilm-forming S. epidermidis strains.

Results:

Methicillin-resistant Staphylococcus epidermidis (MRSE) was 68%. Twenty-eight percent (28%) of the S. epidermidis strains were biofilm producers and also methicillin-resistant. Only one of the biofilm-forming S. epidermidis had the psm-mec gene.

Conclusion:

Biofilm formation and methicillin resistance in *S. epidermidis* from paediatric blood culture gives an indication of its opportunistic pathogenicity and this is often closely associated with medical

procedures such as the use of indwelling catheters. Phenol-soluble modulin is a virulence marker comprising an inflammatory and cytolytic toxin. *Staphylococcus epidermidis* should be considered in the clinical management of children with suspected cases of sepsis and not underestimated or totally disregarded as contaminants.

WSPID19-0396 E-Poster Presentations E-Poster discussion - Stream 1A: Sepsis, Bacteremia and Endocarditis

CASE CONTROL STUDY ON RISK FACTORS AND OUTCOMES IN CHILDREN WITH CARBAPENEM-RESISTANT ORGANISM (CRO) SEPSIS.

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Background:

Carbapenem-resistant gram-negative sepsis causes increased morbidity and mortality in adults due to limited therapeutic options. This study was undertaken to address lacunae in knowledge on risk factors and outcomes in children with Carbapenem-resistant organism (CRO) sepsis from India.

Aims:

To assess risk factors for acquisition and severity of outcomes in children with carbapenemresistant organism (CRO) sepsis compared to those with carbapenem-susceptible organism (CSO) sepsis.

Methods:

Prospective case-control study recruiting children with CRO sepsis as cases and those with CSO sepsis as controls, in a 1:2 case:control ratio.

Results:

Two hundred and twenty-four children, 89 with CRO sepsis and 135 with CSO sepsis, were enrolled. Over half of CRO sepsis was hospital-acquired, while most CSO sepsis was community-acquired. Risk factors for CRO sepsis included urinary catheterization, central venous catheter use and mechanical ventilation prior to culture-positivity (p</=0.001; OR > 2.0 for all). Children with CRO sepsis were more likely to need ICU admission and ventilatory and inotropic support, and more likely to have septic shock, ventilator-associated pneumonia, and single and multi-organ dysfunction (p<0.0001, OR>/= 2.0 for all). Mortality was 28% in children with CRO sepsis compared to 8% in those with CSO sepsis. In children with CRO sepsis, 46% of those with resistance to Colistin and 70% of those with Tigecycline resistance died or were discharged in a moribund state.
The increased risk of acquiring carbapenem-resistant infections due to hospital stay and invasive procedures, and their significantly poorer outcomes and high mortality make prevention through infection control essential to combat these infections in children.

WSPID19-0397 E-Poster Presentations E-Poster discussion - Stream 1A: Sepsis, Bacteremia and Endocarditis

CLINICAL OUTCOMES IN CHILDREN WITH GRAM-NEGATIVE SEPSIS WITH DISCREPANT CARBAPENEM SUSCEPTIBILITY.

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Background:

Discrepant carbapenem susceptibility is seen when gram-negative infections are resistant to one carbapenem but susceptible to another, such as imipenem-resistant meropenem-susceptible (IRMS) or meropenem-resistant imipenem-susceptible (MRIS) phenotypes. No studies have documented outcomes in children with these rare infections.

Aims:

To assess outcomes in children with discrepant carbapenem-susceptible organism(DSO) sepsis compared to those with carbapenem-resistant organism(CRO) sepsis and carbapenem-susceptible organism(CSO) sepsis.

Methods:

Retrospective case-control study including children with DSO sepsis as cases and those with CRO and CSO sepsis as controls.

Results:

Thirty-four children with DSO sepsis and 68 children with CRO and CSO sepsis were enrolled. 85% of DSO sepsis was IRMS phenotype. Hospital-acquired infection was commoner in DSO sepsis compared to CSO sepsis, although lesser than in CRO sepsis. Children with DSO and CRO sepsis were more likely to need ICU admission and to have septic shock, ARDS and multiorgan dysfunction (p<0.01) compared to CSO sepsis. More children with DSO sepsis required mechanical ventilation, although those with CRO sepsis were ventilated longer and were more likely to have ventilator-associated pneumonia (p=0.001). Children with DSO sepsis were less likely to develop renal failure, myocardial/liver dysfunction or encephalopathy compared to CRO sepsis (p</= 0.05). Mortality was 15% in children with DSO sepsis compared to 12% in those with CSO sepsis, lesser than the 26.5% mortality documented in those with CRO sepsis.

Although similar to carbapenem-resistant infections, gram-negative infections with discrepant carbapenem susceptibility appear to be less severe and have better outcomes probably due to availability of better therapeutic options inclusive of a carbapenem.

WSPID19-0414 E-Poster Presentations E-Poster discussion - Stream 1A: Sepsis, Bacteremia and Endocarditis

CAN THE THROMBOCYTOPENIA IN CHILDREN BE A PREDICTIVE MARKER FOR EARLY RECOGNITION OF SEPSIS?

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Background:

Sepsis is the leading causes of death in children worldwide. Early diagnosis and treatment of sepsis is extremely important for favorable outcome. There is no ideal predictive marker for early recognition of sepsis, however some clinical and laboratory values may help clinicians.

Aims:

The aim was to understand whether platelet decrease might be a predictor for early detection of sepsis.

Methods:

This retrospective cohort study was performed at Hacettepe University Ihsan Dogramaci Children's Hospital in Turkey. Data of ninety-seven patients with low platelet counts during December 2014 to December 2016 were evaluated.

Results:

We analyzed the patients in three groups. There were 39 patients in Group-1 (sepsis + thrombocytopenia), 45 patients in Group-2 (infections without sepsis + thrombocytopenia), and 13 patients in Group-3 (thrombocytopenia + other reasons). A significant decrease in platelet counts was seen on the third day after the onset of symptoms and this decrease was correlated with the increase of Pediatric Early Warning Signs scoring. Patients with severe thrombocytopenia (<50103/µL) at least once had shorter overall survival and increased mortality risk by about 3.5-fold.

Patients with thrombocytopenia during sepsis/infectious disease course should be closely monitored with both laboratory and clinical features for appropriate treatment.

WSPID19-0416 E-Poster Presentations E-Poster discussion - Stream 1A: Sepsis, Bacteremia and Endocarditis

ENTERIC FEVER IN CHILDREN: A RETROSPECTIVE 12 YEARS REVIEW

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Background:

Enteric fever caused by *Salmonella* enterica serovar Typhi (S. Typhi) and Paratyphi (S. Paratyphi), is a major public health threat in Nepal. Children bear a substantial proportion of the enteric fever disease burden and are at greater risk in endemic areas.

Aims:

We aimed to analyze the data on antimicrobial susceptibility of *Salmonella* isolated from children and to compare the relative proportion of children with enteric fever in different age groups.

Methods:

A retrospective review of children diagnosed with enteric fever was conducted from January 2006 to December 2018 at National Public Health Laboratory. Patients with positive blood cultures for *Salmonella* Typhi or Paratyphi were identified from laboratory information system and data was extracted from their records.

Results:

Of 8520 blood cultures, 555 were positive for *Salmonella* of which only 17% (95/555) were from children below 14 years of age. S.Typhi accounted for 57% of the total cases. Infections were twice as higher in male child as compared to female child. Patients with Typhoid were slightly younger than those with paratyphoid (median age 10 vs 11.5 yrs). Overall resistance was higher in S. Paratyphi A in all tested antibiotics. 87% of S.Paratyphi A were Nalidixic acid resistant as compared to 68% in S.Typhi isolates. Only about 5% isolates of both serovars were Multidrug resistant

Conclusion:

Typhoid is endemic in Nepal and increasing antimicrobial resistance has limited the treatment options. The use of typhoid vaccine and education on hygiene and sanitation to children needs to be emphasized.

WSPID19-0478 E-Poster Presentations E-Poster discussion - Stream 1A: Sepsis, Bacteremia and Endocarditis

STENOTROPHOMONAS MALTOPHILIA BACTEREMIA IN CHILDREN-A 10-YEAR ANALYSIS

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Background:

Stenotrophomonas maltophilia, a multidrug resistant Gram-negative and biofilm-forming pathogen, has emerged as an important opportunistic, mainly a nosocomial pathogen especially in immunocompromised patients and especially with the history of carpanepem usage before. There is limited information concerning *S.maltophilia* bacteremia in children.

Aims:

The objective of this study was to clarify the clinical and microbiologic characteristics of pediatric patients with *S. maltophilia* bacteremia over a 10-year period in our center.

Methods:

We retrospectively reviewed clinical data and microbiological test results for children (0-18 years old) who had positive clinical specimen blood and/or catheter cultures over a ten years period in a tertiary children's hospital.

Results:

We identified 20 *S.maltophilia* isolates from 12 pediatric patients with confirmed infections. The median age was 28 months (range: 3.1 - 187.3 months). The major underlying diseases included immune deficiency and congenital heart disease. The previous use of the antimicrobial therapy rate was (83%). The median antibiotic number and the use of carbapenems rate were 3 (range:0-7) and 66.7 % within 30 days prior to onset of *S.maltophilia* bacteremia respectively. 83.3% were hospital-acquired infections. The central line–associated bloodstream infection was the main infectious source (66.6%). The frequently used antimicrobial agent was ciprofloxacin (50%). The median length of hospitalization was 60.5 days (range:5–170 days). The mortality rate was 33.3%. Two of non-survivors were associated with pneumonia

S.maltophilia should be considered as a breakthrough agent for bacteremia in pediatric patients with underlying disease that have exposured to broad spectrum antibiotics during long term hospital stay.

WSPID19-0201 E-Poster Presentations E-Poster discussion - Stream 2A: Antibacterial Vaccines I

PERSISTENCE OF IMMUNITY AT 2-3 YEARS AFTER TWO-DOSE PRIMING WITH THE 10-VALENT PNEUMOCOCCAL CONJUGATE VACCINE AT 6 AND 10 WEEKS TO 6 AND 14 WEEKS

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Background:

We previously reported a clinical trial in Nepal that compared immunity following the ten-valent pneumococcal conjugate vaccine (PCV10) administration at 6 and 10 weeks with administration at 6 and 14 weeks of age, both followed by a 9 month booster.

Aims:

We aimed to evaluate the medium-term persistence of serotype-specific pneumococcal immunity at 2-3 years of age in those who initially received priming doses at 6 and 10 weeks, compared with those primed at 6 and 14 weeks of age.

Methods:

Nepali children aged 2-3 years, who had participated in the previous study, were recruited and their blood was collected. Serotype-specific antibody concentrations were determined by ELISA at a WHO pneumococcal serology reference laboratory.

Results:

From January 2018 to April 2018 a total of 220 children were enrolled in this follow-up study. The proportions of children with serotype-specific IgG $\geq 0.35 \mu$ g/mL were comparable in the 6 + 10 group and 6 + 14 group for all PCV10 serotypes. The geometric mean concentration of anti-pneumococcal IgG was also comparable, except for serotype 19F, which was higher in the 6 + 14 group compared with the 6 + 10 group (GMR 0.676, 95%CI 0.50–0.92, p=0.013).

Conclusion:

Immunisation with PCV10 at 6 + 10 week or 6 + 14 weeks, with a booster at 9 months in each case, results in similar persistence of serotype-specific antibody to 2-3 years of age. As such, we would anticipate that direct protection from disease at this age and herd protection of the unvaccinated population would be similar across the two schedules.

WSPID19-0231 E-Poster Presentations E-Poster discussion - Stream 2A: Antibacterial Vaccines I

DIFFERENTIAL REPLACEMENT CONTRIBUTES TO COMPARABLE OVERALL IMPACT OF PNEUMOCOCCAL CONJUGATE VACCINES

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Background:

The overall impact of pneumococcal conjugate vaccines (PCVs) is measured by the total reductions in pneumococcal disease resulting from their use. Robust evidence suggests the two currently available PCVs have a comparable overall impact on invasive pneumococcal disease (IPD), despite having different serotype formulations and conjugation chemistries.

Aims:

We evaluated whether different impacts at a serotype level translate to a comparable overall impact.

Methods:

IPD data sets for children <5 years old before PCV7 and after PHiD-CV/PCV13 introduction were identified by literature search and from publicly available surveillance reports in May 2019. Incidence or population-weighted rates of IPD from pre-PCV7 periods were compared to post PHiD-CV/PCV13 use and pooled for each PCV by serotype groupings.

Results:

18 datasets were available to evaluate impact in PCV13 using countries (n=9) and PHiD-CV using countries (n=9). Similar reductions were seen in the common 10 vaccine serotypes (VT10) and in total IPD (Figure). For the three additional serotypes in PCV13, differences were noted between PCVs but the relative magnitude of these changes was small. Significant differences were apparent in non-vaccine serotype replacement (both non-VT13 and non-





Conclusion:

Overall, minor differences in IPD due to the additional 3 serotypes are counterbalanced by differences in replacement disease. Consequently, both PCVs provide comparable overall protection against IPD, supporting recent evidence reviews by PAHO, IVAC and SAGE and SpIDnet.

Funding: GlaxoSmithKline Biologicals SA.

WSPID19-0418 E-Poster Presentations E-Poster discussion - Stream 2A: Antibacterial Vaccines I

MATERNAL PRIMING: DOES THE ASSOCIATION BETWEEN BCG SCAR AND SURVIVAL AMONG BCG-VACCINATED CHILDREN DIFFER BY MATERNAL BCG SCAR? A PROSPECTIVE COHORT STUDY FROM GUINEA-BISSAU

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Background:

BCG vaccination has non-specific effects (NSEs) conveying protection beyond tuberculosis. Children developing BCG scars have lower mortality. Recent observations indicate that maternal BCG vaccination enhances the beneficial NSEs of BCG in children.

Aims:

To assess whether child survival after BCG vaccination depends differentially on BCG-scarring in children born to BCG scar-positive and scar-negative mothers.

Methods:

In a re-analysis of data from Bandim Health Project's rural health and demographic surveillance system in Guinea-Bissau, we compared survival of children by child and maternal BCG scar status in Cox proportional hazards models with age as underlying timescale. BCG-vaccinated children with known maternal scar status entered the analysis at inspection for BCG scar at least one month after vaccination. Children were followed to death, migration or 5 years of age, whichever came first.

Results:

Among 13,968 BCG-vaccinated children with known maternal BCG scar status, 7336 (53%) were born to scar-positive mothers. BCG scar proportions were equal in children of BCG scar-positive (3738/7336) and scar-negative (3401/6632) mothers. During follow-up 419 children died. The Hazard Ratio (HR) comparing mortality for children of scar-positive vs scar-negative mothers was 0.90 (0.73-1.12). A BCG scar was associated with lower mortality among children of scar-positive mothers, HR=0.67 (0.51-0.87), while the association tended to be weaker in children of scar-negative mothers, HR=0.75 (0.54-1.04) though not significantly so (p=0.55).

Among neonatal BCG-vaccinated children (39%), the HR was 0.55 (0.34-0.90) if the mother was scar-positive and 0.75(0.53-1.06) if scar-negative.

Conclusion:

The findings are consistent with the effect of BCG being more beneficial in children of BCG-vaccinated mothers.

WSPID19-0054 E-Poster Presentations E-Poster discussion - Stream 2A: Community Acquired Bacterial Infections I

PREDICTORS OF 'UNLIKELY BACTERIAL PNEUMONIA' AND 'ADVERSE OUTCOME' IN VIETNAMESE CHILDREN ADMITTED WITH PNEUMONIA

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Background:

Pneumonia is the leading cause of antibiotic use and hospitalisation in Vietnam.

Aims:

There is a need for better prediction of 'unlikely bacterial pneumonia' to improve rational antibiotic use and 'adverse pneumonia outcome' to guide hospital admission.

Methods:

Data were prospectively collected on children under five admitted with 'pneumonia' (per clinician assessment) to the Da Nang Hospital for Women and Children in Vietnam over 12 months. Children were classified as having 'likely bacterial' or 'unlikely bacterial' ('no' and 'likely viral' combined) pneumonia using chest radiograph (CXR) appearance and C-reactive protein (CRP) level. Predictors of 'adverse pneumonia outcome' (ICU admission or death) were evaluated.

Results:

Of 3,817 patients assessed, 2,199 (57.6%) met World Health Organisation (WHO) pneumonia criteria. Most children 3,606 (94.5%) had a CXR on admission and 1,076 (28.2%) had a CRP. Among them 984 (25.8%) were classified as 'no pneumonia', 305 (8.0%) as 'likely viral' and 129 (3.4%) as 'likely bacterial' pneumonia'. The remainder 2,399 (62.9%) were considered to have disease of 'uncertain aetiology'. Factors strongly associated with 'unlikely bacterial pneumonia' at presentation were 'no fever', 'no consolidation on CXR' and 'absolute neutrophil count <5x109/L'; negative predictive value for 'likely bacterial pneumonia' 0.93. Those meeting WHO

pneumonia criteria 189/2,199 (8.6%) with an adverse outcome were best predicted by any WHO danger sign or consolidation on CXR.

Conclusion:

Amongst children who present to hospital with respiratory symptoms, unnecessary antibiotic use and admission may be reduced by implementing a pragmatic management algorithm; if validated in a prospective study. WSPID19-0103 E-Poster Presentations E-Poster discussion - Stream 2A: Community Acquired Bacterial Infections I

A NOVEL PROMISING APPROACH IN THE TREATMENT OF PSEUDOMONAS AERUGINOSA AND NONTYPEABLE HAEMOPHILUS INFLUENZAE RECURRENT RESPIRATORY TRACT INFECTIONS IN CHILDREN

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Background:

Recurrent respiratory tract infections by *P. aeruginosa* and *Nontypeable H. influenzae* biofilm are one of the most frequent reasons for pediatric hospitalization. The biofilm formation contribute towards recurrent of infection, resistant to antibiotics and declining of lung function. However, no effective therapy has been developed yet for their treatment.

Aims:

Here, novel short, synthetic cationic peptides were tested for their anti-biofilm effectiveness as well as their ability to inhibit and disperse biofilms.

Methods:

The action of 17 novel anti-biofilm peptide candidates were firstly evaluated against clinical isolates of *P. aeruginosa* and *Nontypeable H. influenzae* via a high-throughput plate-based assay, coupled with confocal microscopy using live/dead bacteria staining. The ability of candidate peptides to eliminate biofilm on human primary airway epithelial cell cultures derived from children with CF were assessed using an air-liquid interface (ALI) cell culture biofilm model together with GFP tag bacteria.

Results:

Six candidate peptides (HDP- 25,26,43,101,102,103) were active at eradicating *P. aeruginosa* and *Nontypeable H. influenza* biofilms at relatively low concentrations (16-128µg/ml). High doses of current conventional antibiotics (Amikacin, Tobramycin and Ciprofloxacin; (128-1024µg/ml)) were unable to eradicate these biofilms. HDP 102 was the most potent peptide, driving >90% bio-volume reduction in airway epithelial cells and a74% reduction of bacterial attachment to these cells.

Characterization Anti-Biofilm activity of PEP 102 (124µg/ml) and Inhibitory peptide - I (200µg/ml) on *Pseudomonas aeruginosa* - CF air way primary epithelial cell culture biofilm model under the high resolution confocal scanning laser microscopy



A – Cells with peptides only ; B- Cells with Biofilm; C – Treated with PEP 102 Submerge ; D- Treated with PEP 102 Aerosol E-Treated with PEP 102 +I Submerge; F- Treated with PEP102 +I Aerosol; G- Treated with I Subemrge ; H - Treated with I Aerosol I- Treated with Tobromycine 16 μg/ml Submerge; J- Treated with Tobromycine 16μg/ml Aersol



Characterization Anti-Biofilm activity of PEP 102 (124µg/ml) and Inhibitory peptide - I (200µg/ml) on Nontypeable Haemophilus influenzae- CF air way primary epithelial cell culture biofilm model under the high resolution confocal scanning laser microscopy

A – Cells with peptides only; B- Cells with Biofilm; C – Treated with PEP 102 Submerge; D- Treated with PEP 102 Aerosol E-Treated with PEP 102 + I Submerge; F- Treated with PEP102 + I Aerosol; G- Treated with I Subemrge; H - Treated with I Aerosol I- Treated with Ciprofloixacin 2µg/ml Submerge; J- Treated with Ciprofloixacin 2µg/ml Aerosol

Conclusion:

These findings highlight the potential of host defence peptides as a novel option to treat pediatric recurrent respiratory tract infections. Insights gained through this work may offer solutions for targeted approaches to treat bacterial biofilms and improve the outcome of patients with chronic lung infections.

WSPID19-0110 E-Poster Presentations E-Poster discussion - Stream 2A: Community Acquired Bacterial Infections I

ETIOLOGY OF URINARY TRACT INFECTIONS IN FEBRILE CHILDREN FROM A SINGLE CENTER DURING 2011-2017 IN KOREA

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Background:

Urinary tract infections (UTIs) are the most common serious bacterial infections in children. Factors that affect the incidence of UTIs are associated with gender, age and general health.

Aims:

To identify the epidemiology of UTI in febrile children for recent 7 years and to analyze the bacterial pathogens and temporal trends of susceptibility of microorganisms to guide empirical antibiotics therapy.

Methods:

We retrospectively analyzed the medical records of children with first UTI episodes at the Samsung Changwon Hospital from 2011 to 2017.

Results:

During the 7-year period, a total of 759 patients fit the inclusion criteria; with the median age 0.3 (range 0-17.6) years old. Male was 63.1%; 69.0% from 0 to 11 months and 28.8% beyond 12 months. *Escherichia coli* was the leading cause of febrile UTI (88.5%) followed by *Klebsiella* species (4.2%) and *Enterobacter* species (3.7%). In febrile UTI caused by enteric gram-negative rods, 21.2% (n=149/704) were extended-spectrum β -lactamase (ESBL) producers. There was a significant difference in susceptibility of cefotaxime between ESBL producers (0.7%) and nonproducers (98.0%) whereas no significant difference in those of piperacillin tazobactam (88.9% vs. 94.8%), imipenem (100% vs. 100%), gentamicin (63.8% vs. 87.6%), amikacin (99.3% vs. 100%) and trimethoprim sulfamethoxazole (55.0% vs. 78.6%).

Conclusion:

The epidemiologic patterns of UTI have not changed, with the prevalence highest below 12 months of age and female predominance beyond 12 months. The proportion of ESBL producers

causing UTI is significantly high in community. Piperacillin tazobactam could be considered for empirical treatment in UTI because of high susceptibility in ESBL producer in vitro.

WSPID19-0281 E-Poster Presentations E-Poster discussion - Stream 2A: Community Acquired Bacterial Infections I

THE EFFECT OF PROBIOTICS ON THE LENGTH OF HOSPITAL STAY IN CHILDREN WITH COMMUNITY ACQUIRED PNEUMONIA

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Background:

Pneumonia is the leading infectious cause of death globally among children younger than 5 yr.In addition to the main medications for pneumonia, there are various nutritional supplements that can help treat pneumonia by boosting the activity of the immune system including vitamin C, zinc, oregano oil, goldenseal, and probiotics.

Aims:

The aim of this study was to investigate the effect of probiotics on the length of hospital stay in children with community acquired pneumonia.

Methods:

In this double-blind randomized controlled trial children hospitalized with community acquired pneumonia who met the inclusion criteria of the study were randomized into two groups and 60 subjects were assigned to each group. After obtaining parental (or guardian) consent, the controls only received conventional medications for pneumonia and the cases received probiotic medication (one sachet of Protexin a day) in addition to the conventional medications.

Results:

The mean value of hospital stay was 3.6 and 3.49 days in cases and controls respectively. There was no significant difference between the two groups regarding the length of hospital stay (P=0.72). Hospital stay was shorter in cases with moderate and severe pneumonia compared to their corresponding controls; however, only the difference between the cases and controls with severe pneumonia was statistically significant (P=0.04).

Conclusion:

Our findings suggest that there is no significant relationship between the use of probiotics and the length hospital stay. In addition, factors such as disease severity and age generally had no role in the effectiveness of probiotics on hospital stay

WSPID19-0090 E-Poster Presentations E-Poster discussion - Stream 3A: Public Health and Hospital Based Infections

PREVALENCE OF STREPTOCOCCUS PNEUMONIAE IN CONJUNCTIVAL FLORA AND ASSOCIATION WITH CARRIAGE IN NASOPHARYNX AMONG HEALTHY VIETNAMESE CHILDREN

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Background:

While Streptococcal pneumoniae (S. pneumoniae) can colonize at conjunctiva and nasopharynx, it is also a major pathogen involved in invasive diseases, otitis media, sinusitis, and acute conjunctivitis.

Aims:

We investigated the association of S.pneumoniae in the conjunctiva and the nasopharynx of healthy children before Pneumococcal Conjugate Vaccine introduction in Vietnam.

Methods:

This study was conducted in 6 communes in Nha Trang, Vietnam, in October 2016. Children aged <24 months in each commune were randomly selected and invited for examination. Child's conjunctival and nasopharyngeal swab samples were collected. S.pneumoniae was detected using lytA real-time PCR and culture. Serotype was determined using microarray analysis. Association of S.pneumoniae in nasopharynx and conjunctiva was evaluated using a multivariable logistic regression model.

Results:

Six hundred and ninety eight children were enrolled. Sixty two children (8.9%, 95%CI 6.9-11.2%) were positive for S.pneumoniae in conjunctiva. S.pneumoniae in child's nasopharynx had significantly positive association with the child's S. pneumoniae positive conjunctiva (aOR 47.55, 95%CI 23.30-97.06) and the serotype in the conjunctiva and in the nasopharynx matched in most children. Low birthweight and day care attendance were also more likely to have S. pneumoniae positive conjunctiva independently (aOR 10.67, 95%CI 3.95-28.85 and 2.24, 1.44-3.50, respectively). Non-typeable S.pneumoniae was the most commonly (59%) detected in the conjunctiva.

S. pneumoniae in conjunctiva was detected in 8.9% of Vietnamese children aged <24 months in pre-S. pneumoniae vaccination era. S. pneumoniae carriage in conjunctiva was positively associated with the carriage in nasopharynx and the serotype had conformity in most children.

WSPID19-0168 E-Poster Presentations E-Poster discussion - Stream 3A: Public Health and Hospital Based Infections

SOURCES OF HEALTHCARE AMONG UNDER-FIVE MALAWIAN CHILDREN WITH DIARRHOEAL EPISODES: AN ANALYSIS OF THE 2017 DEMOGRAPHIC AND HEALTH SURVEY

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Background:

Diarrhea remains a leading cause of morbidity and mortality in most regions of the world. These childhood deaths could be averted with universal coverage of current available interventions.

Aims:

The study aimed to document factors associated with the choice for source of healthcare among caretakers seeking treatment for the under-five population with a diarrhea episode.

Methods:

Data obtained from the women's questionnaire were used to extract a subset of data on children between ages of 0 and 59 months. For each of the 3,584 children with a known diarrhea episode, caregivers were asked to report the place at which they sought medical treatment. Four types of health facilities were defined: public, private, pharmacies and other unspecified sources. A multinomial logistic regression model was fitted to estimate the choice of health facility by caregivers of children with a diarrhea episode.

Results:

Public health facilities (79.9%) remain the main source of healthcare. Children from middle income families were more likely to resort to grass root outlets such as pharmacies (RRR: 1.87; 95% C.I: 1.14-3.09) compared to public health facilities. Finally, caretakers of children in the rural areas tended to seek treatment from other unspecified sources (RRR: 7.33, 95% C.I: 1.40-38.36) compared to public health outlets.

Public facilities remain the main source of treatment for children with diarrhea. Reducing underfive mortality due to diarrhea would require significant efforts to address other inequalities in accessing and utilizing healthcare services. Mother's education plays a significant role in treatment seeking patterns among children with diarrhea illness

WSPID19-0181 E-Poster Presentations E-Poster discussion - Stream 3A: Public Health and Hospital Based Infections

COMMUNITY EPIDEMIC OF PANTON VALENTINE LEUKOCIDINE-PRODUCING STAPHYLOCOCCUS AUREUS

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Background:

Community-acquired methicillin-resistant *Staphylococcus aureus* (CA-MRSA) infections occur in immunocompetent individuals and are primarily responsible for skin and soft tissue infection (SSTI) but can occasionally manifest as an invasive infection, such as necrotizing pneumonia or sepsis. Many CA-MRSA in Japan are non-Panton Valentine Leukocidin (PVL)-producing strains, in contrast to other countries.

Aims:

We experienced multiple cases of refractory SSTI with PVL-producing SA from 2016 to 2017. We therefore examined the PVL production and genotype of the SA isolated from community-onset SSTI cases.

Methods:

We targeted bacteria stored at our hospital from January 2017 to September 2018. The detection of PVL was performed using a toxin detection kit by reverse passive latex agglutination, and genotyping was performed by polymerase chain reaction-based ORF Typing (POT). For the POT analysis, 4 PVL-producing strains in 2016 were added. Clinical information was collected from medical records.

Results:

We analyzed 36 strains, of which 8 (22.2%) produced PVL. Of the 12 stocks combined in 2016, 10 of 12 POT analyses were identical. The patients who shared this strain all lived in the same area. The POT type of the strain isolated from the case showing severe cervical abscess was 106-77-113, typical of USA300.

PVL-producing CA-MRSA is spreading in Japan as well as in other countries. Core hospitals in affected areas need to be monitored for their epidemic status, as foreign strains may be imported and easily spread.

WSPID19-0270 E-Poster Presentations E-Poster discussion - Stream 3A: Public Health and Hospital Based Infections

EFFECTIVENESS OF DAILY CHLORHEXIDINE BATHING IN REDUCING HEALTHCARE-ASSOCIATED INFECTIONS IN THE PEDIATRIC INTENSIVE CARE UNIT OF A TERTIARY GOVERNMENT HOSPITAL

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Background:

Healthcare-associated infections (HCAIs) are a common complication of prolonged hospital stay, leading to increased morbidity and mortality.

Aims:

This study aims to determine the effectiveness of daily chlorhexidine bathing in reducing HCAIs in the pediatric intensive care unit (PICU).

Methods:

This is a randomized controlled, observer-blinded study conducted over a 6-month period. Included were 2 month to 18 year-old patients admitted to the PICU, randomly assigned to daily bathing with 2% chlorhexidine or to the standard practice of bathing with plain soap and water. Primary outcome was the incidence of HCAI in each group. Statistical analysis was done using the Mann-Whitney U test and Chi-square/Fisher's exact test and a p value of < 0.05 was considered significant.

Results:

A total of 50 patients were enrolled in the study. Overall incidence of HCAI was lower in the chlorhexidine group compared to the control group (12% versus 36%, RR=0.33, 95% CI 0.10 – 1.09, p=0.047). Incidence density rate was lower in the chlorhexidine group (5.91 versus 21.03 infections per 1000 person-days, p=0.049). Ventilator-associated pneumonia and bloodstream infections were lower in the chlorhexidine group, but results were not statistically significant. There were no significant differences in mortality rates and length of hospital stay. One adverse event of transient rash occurred in the chlorhexidine group.

Daily chlorhexidine bathing may be more effective in reducing HCAIs in the PICU compared to standard care. However, larger studies are needed to demonstrate the benefit of this simple, easily implementable, and safe infection control measure in children.

WSPID19-0300 E-Poster Presentations E-Poster discussion - Stream 3A: Public Health and Hospital Based Infections

INTRAVENTRICULAR ANTIMICROBIAL THERAPY IN CHILDREN WITH VENTRICULITIS CAUSED BY DRUG-RESISTANT ORGANISMS: A TERTIARY HOSPITAL EXPERIENCE AND LITERATURE REVIEW

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Background:

Intraventricular antimicrobial therapy (IVT), the direct installation of antimicrobial agents into the lateral ventricles, may be necessary in patients with ventriculitis non-responsive to intravenous antimicrobial therapy alone, and has been utilized as the last therapeutic option for treatment of multidrug-resistant organisms (MDRO).

Aims:

This study aims to report an institution's experience with IVT in pediatric patients diagnosed with ventriculitis caused by MDRO.

Methods:

The demographic data, cerebrospinal fluid (CSF) culture isolates, treatment regimens, and outcomes of patients with ventriculitis caused by MDRO were retrospectively analyzed.

Results:

From 2016 to 2018, seven (7) pediatric patients diagnosed with ventriculitis caused by multidrug-resistant organisms underwent IVT in combination with intravenous therapy. The median age of patients who received combination IVT and intravenous therapy was 1 year (range 1 month to 17 years old, mean 4.4 years). Fifty-seven (57) percent of patients were females. The isolated pathogens were *Acinetobacter baumannii* MDRO (n=3), *Klebsiella pneumoniae* MDRO (n=2), Methicillin-resistant *Staphylococcus aureus* (n=1), and Methicillin-resistant *Staphylococcus epidermidis* (n=2). One patient had mixed isolates on CSF culture (*Acinetobacter baumannii* and MRSE). The antimicrobial agents used were Colistin (n=4), Vancomycin (n=2), and Gentamicin (n=1). The mean time to initiation of IVT from the diagnosis of ventriculitis was 19 days. The mean duration of IVT therapy was 15 days. The survival rate was 57%.

MDRO ventriculitis is an emerging concern. Optimal therapy is not yet established and experience with IVT in this condition is limited, but IVT may be considered as a treatment option for ventriculitis caused by drug-resistant organisms.

WSPID19-0387 E-Poster Presentations E-Poster discussion - Stream 3A: Public Health and Hospital Based Infections

ANTIBIOTIC SUSCEPTIBILITY OF BACTERIA ISOLATED FROM THE LOWER RESPIRATORY TRACT OF NEONATAL ICU PATIENTS IN MAURITIUS

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Background:

Antimicrobial resistance is a global problem but the antibiotic susceptibility of microorganisms vary considerably according to region and even between departments within the same hospital.

Aims:

The aim of thIS study was to conduct a situation analysis of bacteria isolated from lower respiratory tract specimens from neonatal ICUs (NICUs) in Mauritius and of their antimicrobial susceptibility over a one-year period

Methods:

Laboratory registers were reviewed for culture and antibiotic susceptibility results of all specimens from the lower respiratory tract from all four NICUs of public hospitals in the country in 2018. Duplicate isolates from the same patient were excluded. Organisms likely to be normal flora such as coagulase-negative staphylococcus were not considered.

Results:

Acinetobacter spp. (40), Klebsiella spp. (16), Stenotrophomonas maltophilia (15) and *Pseudomonas aeruginosa* (10) were the most frequently isolated organisms. The percentage susceptibility to cefotaxime, gentamicin, amikacin, meropenem and colistin was 8%, 18%, 25%, 20% and 100% respectively in *Acinetobacter* spp., with corresponding figures of 19%, 38%, 75%, 29%, 94% and 100% respectively in *Klebsiella* spp. 43% of Acinetobacter spp. were susceptible to colistin only. The sole *S.aureus* isolate was susceptible to methicillin. Two carbapenem-resistant Enterobacteriales, were recorded.

Conclusion:

The high resistance rates to most broad-spectrum antibiotics among Gram-negative bacteria isolated from NICUs in Mauritius and the unexpectedly frequent isolation of *S.maltophilia* are likely to have been caused by overuse of antibiotics, particularly carbapenems, and inadequate infection prevention and control (IPC) practices. There is an urgent need for effective IPC and antibiotic stewardship programs to slow the emergence and spread of resistant microorganisms.
WSPID19-0253 E-Poster Presentations E-Poster discussion - Stream 3A: Antibacterial Vacciness II

ESTIMATING THE PUBLIC HEALTH AND ECONOMIC IMPACT OF INTRODUCING THE 13-VALENT PNEUMOCOCCAL CONJUGATE VACCINE (PCV13) INTO STATE IMMUNIZATION PROGRAMS (SIP) IN INDIA

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Background:

In 2017, the Government of India with support from Gavi, The Vaccine Alliance, implemented PCV13 into five SIPs, prioritized based on relative disease burden.

Aims:

The objective of this study is to estimate the public health and economic impact of accelerated vaccine introduction into SIPs.

Methods:

Using a previously developed model we estimated the impact of adding PCV13 into SIPs between 2019-2023. We grouped states into three categories: (1) implemented PCV13 in 2017/2018, (2) the next highest burden states assuming implementation in 2019, and (3) the remaining states, assuming implementation in 2021. Model inputs were derived from published literature and the World Health Organization. Outcomes included invasive pneumococcal disease (IPD), pneumonia, acute otitis media and death. Vaccine uptake was assumed consistent with third dose estimates of diphtheria-pertussis-tetanus toxoid vaccine, derived from The United Nations Children's Fund.

Results:

By 2023, states with PCV13 SIPs (1) could reduce the incidence of IPD and under-five mortality by 36% and 23.1% respectively, corresponding to a net societal savings of \$101,419,455 USD. States that implement in 2021 (3) may only reduce incidence of IPD and under-five mortality by 10.03% and 6.85%, respectively, at a cost of \$22,206,249 USD. As a potential optimal scenario, 2019 national implementation of PCV13 in India could avert 539,443 cases of IPD (28.2%) and 618,394 under 5 deaths (18.3%) by 2023.

Our analysis highlights the public health and economic benefits of accelerated implementation of a national PCV program in India.

WSPID19-0285 E-Poster Presentations E-Poster discussion - Stream 3A: Antibacterial Vacciness II

EXPLORING THE EVIDENCE BEHIND COMPARABILITY OF PCVS IMPACT ON OVERALL PNEUMOCOCCAL DISEASE

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Background:

Higher-valent pneumococcal conjugate vaccines (HV-PCVs) have demonstrated significant impact on the burden of invasive pneumococcal disease (IPD) in children and at all population level. The overall impact of HV-PCVs is a combination of effectiveness against vaccine-serotypes, protection against vaccine-related-serotypes and potential impact on IPD caused by non-vaccine-serotypes.

Aims:

Recent evidence suggests comparable overall impact of HV-PCVs despite some differences in their composition and formulation. Whys and wherefores are discussed herein.

Methods:

Literature data evaluating the effectiveness/impact of HV-PCVs (13-valent PCV [PCV13] and the pneumococcal non-typeable *Haemophilus influenzae* protein D conjugate vaccine [PHiD-CV]) on IPD burden in children aged <5 years were reviewed and analysed by serotype from the selected surveillance sites. Selected data was limited to countries/regions with active IPD surveillance data before and after vaccine introduction up to December 2018.

Results:

Serotype-specific vaccine effectiveness were mostly reported for the non-7-valent PCV-serotypes (1, 3, 5, 6A, 7F, and 19A).

While PHiD-CV does not contain serotype-19A, post-marketing data demonstrated crossprotection against this serotype in vaccinated population, although at a variable extent across different settings.

Heterogeneous results of PCV13 effectiveness against serotype-3 have been observed due to limited sample size in the evaluated studies. Consequently, robust conclusions cannot be obtained with regards to IPD prevention.

Variability in replacement disease has been observed among countries/region. One of the factors that may influence the observed difference is the HV-PCV formulation used in the

national immunization program of each country/region.

Figure. Vaccine effectiveness of HV-PCVs



Vaccine effectiveness (%)

PCV13, 13-valent pneumococcal conjugate vaccine; PHiD-CV, pneumococcal non-typeable Haemophilus influenzae protein D conjugate vaccine; SpIDnet, Streptococcus pneumoniae Invasive Disease network; CDC, Centers for Disease Control and Prevention.

Conclusion:

Despite the difference in formulation, both PCV13 and PHiD-CV are highly effective, to a comparable extent, in reducing the IPD incidence.

WSPID19-0380 E-Poster Presentations E-Poster discussion - Stream 3A: Antibacterial Vacciness II

THE OUTCOME OF ACCIDENTAL BCG OVERDOSING DURING ROUTINE IMMUNIZATION OF NEONATES

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Background:

In January 2015, 19 neonates were accidentally given intradermal BCG (Bacillus-Calmette Guerin) culture SSI, a dose 62.5 times above the standard dose for neonates at a Western Cape hospital. After recognizing the error, all neonates who were given BCG culture were identified and treatment initiated with high dose isoniazid and rifampicin.

Aims:

Fourteen of the nineteen neonates were enrolled and followed-up to observe what proportion of neonates would develop adverse reactions. Complications included severe local and regional adverse reactions and systemic BCG disease.

Methods:

The neonates were followed-up for 24 months. The data was described using descriptive analysis and summarized with quantitative descriptions. Univariate analysis was used to describe the variables. The frequency and central tendency of distribution was calculated with use of median values and interquartile range (IQR).

Results:

Expected mild adverse reactions occurred in all neonates (n=14, 100%), which was much higher than expected when compared to the usual occurrence of BCG adverse reactions to the BCG vaccine in neonates as demonstrated by the randomized control trial by Nissen et al. The more common occurrence of mild adverse reactions could be explained by the much higher dose of BCG administered. The majority of local adverse reactions were of short duration with one third resolving within 2 weeks and not a single one being present at 6 months.

In this case series, no regional or systemic BCG disease occurred in any of the healthy term neonates who received an accidental overdose of BCG culture, instead of BCG vaccine.

WSPID19-0456 E-Poster Presentations E-Poster discussion - Stream 3A: Antibacterial Vacciness II

REVERSE ASSOCIATION OF SERUM FERRITIN LEVEL WITH IMMUNITY TO PNEUMOCOCCAL VACCINE IN SPLENECTOMISED B-THALASSEMIA CHILDREN <u>A. Sotoodeh Jahromi</u>¹

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Background:

Thalassemia is an inherited condition involving an abnormal form of hemoglobin, which leads to disturbances in globin chain and anemia is the consequences of this disorder. Iron overload, which is caused by repeated blood transfusions, is the main cause of immune abnormalities.

Aims:

This study assesses the hypothesis that high ferritin serum level affects immune response to pneumococcal vaccine in beta-thalassemia patients whom received pneumococcal vaccine prior to Splenectomy.

Methods:

This cross-sectional study was done on 347 splenectomised β -thalassemia patients under the auspices of Jahrom Medical Sciences University, Jahrom, Iran, 2018. The IgG antibody titers to pneumococcal vaccine and also serum ferritin levels were determined by ELISA methods.

Results:

There was inverse significant correlation between anti-pneumococcal IgG titers and time post vaccination (r=-0.683, P<0.0001). Also, there was revers significant correlation between anti-pneumococcal IgG titers and serum ferritin level (r=-0.778, P<0.0001).

Conclusion:

According to the results of present study, contentious monitoring of anti-pneumococcal vaccine IgG titers in these patients is recommended. Also, according to the finding of our study indicating the revers significant correlation was found between anti-pneumococcal vaccine IgG titers and serum ferritin level, the monitoring and lowering of serum ferreting level is recommended.

WSPID19-0142 E-Poster Presentations E-Poster discussion - Stream 3A: Diagnostic Microbiology and Emerging Infections

EVALUATION OF A RAPID ANTIGEN TEST KIT "RIBOTEST MYCOPLASMA®" FOR THE DETECTION OF MYCOPLASMA PNEUMONIAE INFECTION IN CHILDREN

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Background:

Early diagnosis of *Mycoplasma pneumoniae* is important for appropriate antimicrobial therapy in children with pneumonia.

Aims:

This study aims to evaluate the diagnostic value of a rapid antigen test kit in detecting *M. pneumoniae* from respiratory specimens in children with lower respiratory tract infection (LRTI).

Methods:

Two-hundred-fifteen nasopharyngeal aspirates (NPAs) were selected from a large pool of NPAs that had been obtained from children admitted for LRTI from August 2010 to August 2018. The specimens had been tested for *M. pneumoniae* by culture and stored at -70°C until use. Tests with Ribotest Mycoplasma® were performed and interpreted by independent investigators who were blinded to the culture results.

Results:

Among the 215 NPAs, 119 were culture positive for *M. pneumoniae* and 96 were culture negative. Of the culture positive specimens, 74 (62.2%) were positive for *M. pneumoniae* by Ribotest Mycoplasma® and 92 of the 96 (95.8%) culture negative specimens were negative by Ribotest Mycoplasma®. When culture was used as the control test, the sensitivity and specificity with Ribotest Mycoplasma® were 62.2% and 95.8%, respectively. Additionally, the positive predictive value, negative predictive value, and overall agreement rates with Ribotest Mycoplasma® were 94.9%, 67.2%, and 77.2%, respectively.

Conclusion:

This study demonstrates that Ribotest Mycoplasma® has a sensitivity of 62.2% and specificity of 95.8% in detecting *M. pneumoniae* from NPAs in children with LRTI. This method of detection

is easy to perform and the test results can be obtained promptly, hence it will be useful in rapidly diagnosing *M. pneumoniae* infection during the epidemics.

WSPID19-0206 E-Poster Presentations E-Poster discussion - Stream 3A: Diagnostic Microbiology and Emerging Infections

CAT-SCRATCH DISEASE: A CASE REPORT

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Background:

Cat-scratch disease (CSD) is a zoonotic infection characterized by regional lymphadenopathy caused by Bartonella henselae. The disease can rarely be associated with severe clinical symptoms.

Aims:

In this article, a case who was diagnosed as cat-scratch disease with clinics, serology and PCR was presented.

Methods:





Case: A 16-year-

old female patient presented with painful swelling in the left submandibular region. She had no history of travel but she was feeding a cat at home. Physical examination revealed fever and painful lymphadenopathy with a size of 2x1 cm in the left submandibular region (Figure 1). Cervical CT pathologic lymph nodes with a cystic necrotic area of 2 cm in the left cervical chain (Figure 2). The patient underwent ampicillin-sulbactam and clindamycin treatment with the diagnosis of bacterial adenitis and underwent surgical drainage and incision. Acid-resistant bacteria were not detected, Tbc PCR was negative in the sample, with no growth in abscess and blood culture. In the tissue sample Bartonella PCR was positive; serological tests were positive for Bartonella Henselae IgG at 1/1024 titer. Abdominal USG was normal which was performed for neuroretinitis and no pathology was observed in echocardiography. The patient was referred to outpatient follow-up.

Results:

Azithromycin treatment was started with the diagnosis of cat-scratch disease.

Cat-scratch disease should be considered in patients with history of cat contact and fever of unknown origin. The patient should be monitored with a multidisciplinary approach in terms of possible serious complications

WSPID19-0340 E-Poster Presentations E-Poster discussion - Stream 3A: Diagnostic Microbiology and Emerging Infections

CLINICAL CHARACTERISTICS OF TICK-BORNE ENCEPHALITIS IN CHILDREN: A 5 YEAR PROSPECTIVE CLINICAL STUDY (2013 – 2018) OF PAEDIATRIC PATIENTS IN SLOVENIA <u>K. Vincek¹</u>, M. Arnez²

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Background:

Tick-borne encephalitis (TBE) is potentially life-threatening infectious disease that occurs in endemic areas.

Aims:

To increase the knowledge about TBE and problem awareness outside endemic areas.

Methods:

Fifty-eight children treated for TBE at Department of Infectious Diseases, University Medical Centre Ljubljana between 2013 and 2018 were enrolled.

Results:

Most of the TBE cases occurred in the summer months. Half of the patients (29/58) had a history of tick bite. The first phase of the TBE was recorded in 74 % (43/58) with the median duration of 4.37 days (1 – 10 days). The median interval between two phases was 7.8 days (ranging from 2 – 17 days). The median duration of the symptoms of the second phase was 3.5 days (ranging from 1 – 9 days). On admission children with TBE had signs of meningitis in 86 % (49/57), fever in 88 % (49/56), headache in 88 % (51/58), vomiting in 69 % (40/58) and sensitivity to light in 22 % (13/58). The tremor of the limbs or tongue was observed in 70 % (41/58). Four presented with cerebral convulsions, two were confused, three complained of severe muscle pain, one with the peripheral facial nerve palsy. Regarding cerebrospinal fluid results the median number of leucocytes was 138 x 10^9/l with neutrophils predominance in 65 % (36/55). Elevated protein concentration in cerebrospinal fluid (>0.45 g/l) was detected in 60 %.

Conclusion:

TBE vaccination should be recommended when people travel to endemic areas and come into contact with nature regardless of age and duration of stay.

WSPID19-0351 E-Poster Presentations E-Poster discussion - Stream 3A: Diagnostic Microbiology and Emerging Infections

SENSITIVITY AND PROMPTNESS OF WEB-BASED SURVEILLANCE SYSTEMS FOR EMERGING INFECTIOUS DISEASES

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Background:

Emerging infectious diseases (EIDs) pose public health threats. Due to their novelty, preparing preemptive control measures is hardly possible, and thus developing early warning system is critical to cope with them. Web-based surveillance (WBS) system such as ProMED-mail could be utilized to this end, but quantitative assessment should be preceded.

Aims:

This study aimed to evaluate the capacity of a WBS system (ProMED-mail) in detecting EID events in terms of sensitivity and promptness.

Methods:

A list of historical EID events since 2000 have been retrieved from the emerging infectious disease repository (EIDR), which was developed to identify the origins of EID and includes information on pathogens, outbreak dates and zoonotic characteristics, etc. We searched the events from ProMED-mail to identify the proportion reported (sensitivity) and the time lags between disease emergence and reporting (promptness).

Results:

Among 350 events retrieved from EIDR, 53 events were finally included for analysis (excluding 293 events that occurred before 2000 and 4 with incomplete information). Twenty-three events (43.3%) were reported in ProMED, and the time lags ranged between 1-60 months (Mean=12.5, SD=17.5). Twenty events (37.7%) were zoonotic with half (50.0%) reported in ProMED-mail; Among 33 non-zoonotic events, 13 (39.4%) were reported in ProMED-mail. The average time lags for zoonotic and non-zoonotic EIDs were 4.9 (SD= 5.2) and 18.4 months (SD=21.3), respectively.

Our findings suggest that sensitivity and promptness of ProMED-mail needs to be further improved, especially for non-zoonotic EIDs. They also warrant the need to assess the capabilities of other WBS systems.

WSPID19-0194 E-Poster Presentations E-Poster discussion - Stream 3A: Global Child Health I

DISEASE ACQUISITION IN PAEDIATRIC INTERNATIONAL TRAVELERS; A TEN-YEAR REVIEW AT THE HOSPITAL FOR SICK CHILDREN

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Background:

International travel can expose travelers to a variety of health risks which have the potential to cause significant morbidity and mortality globally.

Aims:

To describe imported infectious diseases associated with international travel at a tertiary care pediatric hospital in the culturally diverse city of Toronto, Canada.

Methods:

Retrospective chart review of selected travel related infections in children under 18 years of age who were admitted at SickKids between January 1, 2009 and December 31, 2018. Cases were identified using an ICD-10 search of medical records. Patient demographics, travel history, epidemiological data, disease, and prophylaxis history were extracted.

Results:

In total, we identified 156 children who were hospitalized with the selected travel related infections. The most common diagnoses were typhoid or paratyphoid fever (n=58, 37%), malaria (n=57, 36%), and Hepatitis A (n=14, 8%). The median age of those infected was 8 years (IQR 3-12). There were 122 (78%) Canadian born, 31 (20%) immigrants and 3 (2%) who were visiting Canada. Of those who lived in Canada, 112 (90%) were visiting friends or relatives (VFR), 6 (5%) were traveling for tourism and 2 (2%) were travelling for humanitarian work . The most common country for acquisition of typhoid or paratyphoid fever was India. Most common country of infection for Malaria was Nigeria 33%. Hepatitis A was most commonly acquired in Pakistan 57%.

Conclusion:

Imported infectious diseases continue to be a significant issue in travelers. Many of the infections are preventable and higher risk groups, in particular child VFRs, should be targeted for improved pre-travel preventative care.

WSPID19-0254 E-Poster Presentations E-Poster discussion - Stream 3A: Global Child Health I

UNDIFFERENTIATED PROLONGED FEVER IN A PEDIATRIC POPULATION IN INDIA *M. Chaudhary*^{1,2}

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Background:

Undifferentiated prolonged fever is a common presentation for children in Southeast Asia. Studies evaluating the etiology and diagnostic approach are limited.

Aims:

To evaluate the causes and diagnostic approach of undifferentiated prolonged fever in a pediatric population in India.

Methods:

This was a retrospective cohort study of children, newborn to 21 years with daily fever >38.3°C (101°F) for ≥8 days with no apparent diagnosis after initial outpatient or hospital evaluation. Potential diagnostic clues were identified and workup proceeded to establish a confirmatory diagnosis.

Results:

From June 2018 to May 2019, 115 children were evaluated. Seventy-four (64%) were male, and the mean age was 4.6 years (range 1.5 months to 17 years). Infections accounted for the majority of undifferentiated prolonged fever (n=93, 81%), followed by non-infectious and undiagnosed cases (n=20, 17%; n=2, 2% respectively). Among children with diagnosed infections, bacteria were most commonly identified (49%) followed by viruses (37%). Thirteen (14%) children were coinfected with bacteria and viruses. Tuberculosis and Staphylococcus aureus were common bacterial isolates (n=7 each, 40%). Advanced imaging revealed renal, psoas and brain abscesses which required surgery. EBV and CMV were frequent (n=6, 18%; n=4, 12% respectively) viral infections. Dengue and EBV induced secondary hemophagocytic lymphohistiocytosis was also diagnosed. Non-infectious non-inflammatory (NIID) causes of prolonged fever included autoimmune hepatitis, Kawasaki disease, and Sarcoidosis.



Undifferentiated fever in Indian children is usually caused by a bacterial or viral infection. However, coinfections, abscesses, and NIID should also be considered. These data were used to create an algorithm for diagnosis of undifferentiated fever in children.

WSPID19-0255 E-Poster Presentations E-Poster discussion - Stream 3A: Global Child Health I

ILLNESS DURING TRAVEL IN PATIENTS OF A FAMILY TRAVEL CLINIC IN TORONTO, CANADA

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Background:

Children have different travel patterns and susceptibilities to travel-related illness. There are limited studies describing travel-related illness in children and no Canadian studies describing illness during travel in children and families.

Aims:

To describe self-reported illness during and after travel in individuals that attended a travel clinic at the Hospital for Sick Children in Toronto, with a focus on children and families.

Methods:

Individuals visiting the clinic and travelling from 2014-2015 were eligible for participation in a larger travel study. Participants completed a travel assessment form. Illness during travel was self-reported in travel diaries. Electronic surveys were sent to participants to capture travel-related illness that became symptomatic post-travel. Travelers did not need to complete a travel diary to receive a post-travel survey.

Results:

There were 95 families and solo travelers who received diaries. From the 66 returned diaries, 64 cases of illness during travel were identified. The most common symptoms were of: diarrhea 24 (N=24, 38%), respiratory disorders (N=19, 30%) and non-specific (N=7, 11%). There were 167 families or individual travelers contacted with a post-travel survey. 126 (75.4%) completed the post-travel survey and 62 (49%) had symptoms of illness one week post-travel. The most common symptoms were: cough (N=31, 25%), diarrhea (N=25, 20%) and rhinorrhea (N=24, 19%). We discuss patterns in seeking medical advice and treatment during travel.

Children and families have unique risk factors for illness during travel. Understanding patterns of illness during travel will help to guide pre-travel consultation and post-travel care for children and families.

WSPID19-0413 E-Poster Presentations E-Poster discussion - Stream 3A: Global Child Health I

BEYOND ACCESS TO OXYGEN EQUIPMENT: LESSONS LEARNED FROM TECHNICAL AND CLINICAL EVALUATION OF OXYGEN USE IN 12 SECONDARY HEALTH FACILITIES IN SOUTHWEST NIGERIA

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Background:

Despite oxygen therapy being a known lifesaving intervention for children and neonates, the reliability and quality of oxygen therapy is poor in many low-resource settings. This can result in unintended harm, and may undermine efforts to reduce under-five mortality.

Aims:

This study aimed to evaluate the quality of oxygen therapy in 12 secondary-level Nigeria hospitals.

Methods:

This cross-sectional study involved a three-phased evaluation: (i) facility assessment including technical evaluation of existing oxygen concentrators; (ii) retrospective review of admission case notes; and (iii) survey of health workers on the clinical use of oxygen. We defined hypoxaemia as SpO2 < 90%. We defined oxygen concentrator as being "fit for use" if it produced medical grade oxygen (purity \ge 85%) and had appropriate electrical configuration for use in Nigeria.

Results:

Eleven of the hospitals had some access to oxygen supplies, but only 19.4% (1944/10000) of children showing signs of hypoxaemia received oxygen. Of those that received oxygen therapy, 38.5% (1217/3161) had no signs of hypoxaemia. Facility staff reported limited pre-service training on pulse oximetry and oxygen use in children, and pre-training assessment showed low knowledge scores. We tested 57 oxygen concentrators: 50 (88%) turned on and blew gas, but only 3 (5%) were producing medical oxygen. We estimated that 43% (1595/3708) of children had been given substandard oxygen therapy, and this may have contributed to 220-440 excess deaths from 1105 recorded deaths.

Improving oxygen access for children requires stronger focus on actual provision of oxygen to patients, not just distribution of more equipment

WSPID19-0539 E-Poster Presentations E-Poster discussion - Stream 3A: Global Child Health I

SECRETORY IGA AS EXPOSURE FUNCTION OF EXCLUSIVE BREAST-FEEDING IN INTELLECTUAL DISABILITY AMONG UNITED STATES CHILDREN

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Background:

The secretory IgA (SIgA) which is the primary immunoglobulin present in breast milk has been implicated in respiratory tract infection reduction among children. Given the current contributory effect of pycho-immunology in disease predisposition, there is a potential for the SIgA in contributing to intellectual disability among children. However, the mechanism remains unclear, requiring further investigation.

Aims:

To assess the nexus between SIgA and intellectual disability among children.

Methods:

A cross-sectional design was used to assess data from the National Survey of Children's Health (NSCH) 2016/2017. A representative sample of non-institutionalized children. The variables examined were breastfeeding, intellectual disability, adverse environment, family structure, education, BMI, and child age. The association between SIgA as a latent variable for exclusive breastfeeding (EBF) was assessed using a binomial regression model.

Results:

Of the 9,695 children in the study, EBF as the surrogate for SIgA was observed in 753 (7.8%) children. EBF was more common among whites (7.8%) relative to blacks (5.7%). The SIgA indicated substantial predictability in intellectual disability. Compared to the absence of SIgA, children exposed to SIgA were 5% less likely to be diagnosed with intellectual disability, risk ratio (RR) = 0.95, 95% CI, 0.34 – 2.63. After controlling for the potential confoundings, the differences in intellectual disabilities due to SIgA deficiency, augmented and persisted, adjusted risk ratio (aRR) = 1.07 99% CI, 0.28 – 4.09.

In a representative sample of non-institutionalized United States (U.S.) children, SIgA predicted intellectual disability, implying the immune system response compromization and neurodegenerative impairment, including intellectual disabilities in children.

WSPID19-0028 E-Poster Presentations E-Poster discussion - Stream 4A: Bacterial Infections I

OXIDANT AND ANTIOXIDANT BALANCE IN CHILDREN WITH BACTEREMIA

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Background:

There is a crucial balance between oxidant and antioxidant defense mechanisms.

Aims:

We aimed to evaluate the role of the balance of these systems in bloodstream infection (BSI) of children.

Methods:

We analyzed prospectively oxidant and antioxidant stress parameters from serum samples of children with BSI besides demographic and clinical data of children. Serum levels of the total antioxidant status (TAS), total oxidant status (TOS), ischemia-modified albumin (IMA), antioxidant enzymes, non-enzymatic antioxidant factors and plasma thiol levels were evaluated in both patients and healthy controls.

Results:

A total of 113 children were evaluated, 50 of them had bacteremia and the remaining was healthy. The mean TAS values were 1.6 ± 1.8 and 1.3 ± 0.2 mmol Trolox equiv./L in patients and control, respectively (p>0.05). The median TOS values were 18.5μ mol H2O2/L, 13.1 μ mol H2O2/L in patient and control groups, respectively with a statistically significant difference between groups (p= 0.02). The mean serum IMA levels were 0.8 ± 0.1 absorbance unit (ABSU) in patients, 0.5 ± 0.09 ABSU in control, the difference between groups was statistically significant (p= 0.001). The native thiol (NT), the total thiol (TT) and the disulphide levels were 201, 238 and 18 μ mol/L in patients and 394, 423 and 20 μ mol/L in controls, respectively. NT, TT and disulphide levels were significantly lower in the patient group (p= 0.001, p= 0.001 and p= 0.04, respectively).

Parameters that give an idea regarding with oxidant and antioxidant capacity including TOS, plasma thiols and IMA seem good candidates for accurate diagnosis of bacteremia in children.

WSPID19-0263 **E-Poster Presentations** E-Poster discussion - Stream 4A: Bacterial Infections I

INVASIVE BACTERIAL VACCINE PREVENTABLE DISEASE SURVEILLANCE TO MONITOR TRENDS IN AND RESPOND TO INVASIVE DISEASE IN FIJI

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Background:

Introduction: In 2012, Fiji introduced the 10-valent pneumococcal conjugate vaccine (PCV10). In 2013, WHO Invasive Bacterial - Vaccine Preventable Disease (IB-VPD) surveillance was introduced to monitor PCV10 impact.

Aims:

Invasive bacterial - vaccine preventable disease surveillance to monitor trends in and respond to invasive disease in Fiji

Methods:

Method: Suspected meningitis, sepsis and pneumonia in children <5yrs and lab - confirmed meningitis or sepsis of all ages admitted to the CWM Hospital, were enrolled according to WHO guidelines. Cerebrospinal fluid (CSF) and blood cultures underwent local routine microbiology analysis. Technology transfer of quantitative polymerase chain reaction (qPCR) testing from MCRI to Fiji allowed local testing of CSF samples by qPCR. Isolates were typed at the Melbourne Diagnostic Unit.

Results:

Results: Between Sep2013-Mar2018; 4,272 blood and 2,250 CSF samples were collected. Of these, 268 were probable bacterial meningitis, 189 lab-confirmed bacterial meningitis and 46 lab-confirmed sepsis. Pathogens identified were: *Streptococcus pneumoniae* (SPN) n=89; *Neisseria meningitidis* (NM) n=85; and *Haemophilus influenzae* (Hi) n=21; Hi type b (Hib) n=6; unknown=34. PCV10-type SPN cases declined from 31% (4/13) in 2012 -2013 to 14% (4/29) in 2017 -2018. Common non-PCV10 serotypes were 8, 23B and 7F. NM cases increased from 6 in 2014 to 35 in 2017. Serogroup C (MenC) was predominant, which co-incided with a clinical meningococcal outbreak.

Conclusion:

Conclusion: Establishing IB-VPD surveillance provided evidence of PCV10 impact and monitor serotype replacement. Hib vaccine 3+0 schedule continues to be effective. Importantly, surveillance identified an alarming increase in MenC, triggering a national vaccination campaign.

WSPID19-0297 E-Poster Presentations E-Poster discussion - Stream 4A: Bacterial Infections I

A FATAL CASE OF GROUP A STREPTOCOCCAL TOXIC SHOCK SYNDROME PRESENTED WITH ACUTE SEPTIC ARTHRITIS

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Background:

Recently, the incidence of invasive group A streptococcal infection is very low in Korea. However, the pathogen may cause serious outcome such as necrotizing fasciitis and toxic shock syndrome.

Aims:

We aimed this report to describe a lethal pediatric case of streptococcal toxic shock syndrome presented with acute septic arthritis.

Methods:

A previously healthy 5-year-old boy visited our emergency department with chief complaints of fever and right hip pain. The fever started about 1.5 days before the visit and he showed limping gait. His body temperature was 38 °C, and blood pressure was 90/54 mmHg. His mental status progressively deteriorated to light drowsy level within a few hours. The right hip and adjacent thigh area was swollen with a heat sense and redness. He also showed a pink strawberry tongue and pale-purple colored palms and soles. Mild rales were auscultated in his both lungs. His peripheral blood white blood count was 8,700 /µL and C-reactive protein level was 190 mg/L. His urine output was decreased and the eGFR was 30 mL/min/1.7 m². He was admitted to our PICU, and intravenous teicoplanin plus ceftriaxone and fluid resuscitation were started. MRI revealed the inflammation of his right hip joint and its adjacent structures.

Results:

Despite intensive management, the boy expired. Streptococcus pyogenes was isolated from blood culture and it was sensitive to ampicillin, ceftriaxone, and vancomycin.

Conclusion:

Streptococcal toxic shock syndrome is rare but can be fatal. To reduce morbidity and mortality, pediatricians should be aware of various presentation of S. pyogenes and its possible aggressiveness.

WSPID19-0326 E-Poster Presentations E-Poster discussion - Stream 4A: Bacterial Infections I

DETECTION OF STAPHYLOCOCCUS AUREUS PRODUCER OF THE PVL TOXIN IN OSTEOARTICULAR INFECTIONS IN CHILDREN

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Background:

The osteoarticular infections(OAI) of the child pose a real public health problem because the delay of management puts the functional prognosis of the child at stake. The severity of OAI increases with the emergence of the Panton-Valentin toxin(PVL) produced by *S.aureus*, which requires increased vigilance in the daily practice of pediatric emergencies.

Aims:

The aim of this work is to study *S.aureus* producing PVL in children's OAI at HassanII university hospital in Fez,Morocco.

Methods:

From December 2016to December2017, patients under the age of16 admitted in Pediatric Traumatology Orthopedic Unit at HassanII University Hospital inFez,Morocco, and appearing to have osteoarticular signs to the detailed examination of the musculoskeletal system have been included. Puncture or intraoperative specimens were sown in blood culture flasks, to identify the bacteria by biochemical tests(Gram stain, Catalase, Coagulase and ApiStaph), determine the antibacterial susceptibility according toCA-SFM/EUCAST2017 and detect the presence of the *mecA*gene and the *pvl*gene encoding PVLtoxin by multiplexPCR.

Results:

In 100patients with OAI: septic arthritis accounted for53%, osteomyelitis 43% and spondylodiscitis4%. The average age was 7years with a sex ratio of1.56. Between 76samples taken, a bacterium was identified in 30% of patients, and *S.aureus* was responsible for OAI in

91% of cases. Resistance to Meticillin was found in 1isolate. However, 55% of the MSSA carried the gene coding for the PVLtoxin.

Conclusion:

S.aureus remains the most frequently isolated microorganism in this type of infection with scarcity of Meticillin resistance inMorocco. The majority of PVL+strains are sensitive phenotypes. The presence of PVL is an indicator of the chronicity of the disease.
WSPID19-0524 E-Poster Presentations E-Poster discussion - Stream 4A: Bacterial Infections I

BORDETELLA PERTUSSIS IN THE PHILIPPINES: A PREVALENCE STUDY FROM 2011-2018

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Background:

Pertussis or whooping cough, caused by *Bordetella pertussis*, remains to be a significant cause of childhood mortality even with the presence of a vaccine.

Aims:

In this study, samples from suspected cases of Pertussis were tested and confirmed to determine its prevalence in the Philippines.

Methods:

Samples suspected of pertussis received by the Research Institute for Tropical Medicine from 2011 to 2018 were tested and confirmed for *Bordetella pertussis* infection via culture method and Polymerase Chain Reaction (PCR).

Results:

National Capital Region (NCR, 36.27%) submitted the highest number of samples, followed by the Region 4A (34.01%) Region 12 (0.11%) while CARAGA Region (0.32%) had the lowest recorded cases during the time period. Twenty percent of the samples tested via culture were detected positive for *Bordetella pertussis* (20/823) while 291 samples out of 932 were confirmed positive via PCR. Most of the positive case came from National Capital Region (151 cases) and Region 4A (65 cases). However, the prevalence from each region is highest in Region I and Region IV-B (both 66.67%), followed by and NCR (44.67%). Regardless of age, all age group are susceptible to pertussis infection but children of age 3 months and below are the most susceptible to infection (4.30% culture positive, 51.08% PCR positive).

Conclusion:

There is an observable under-detection and underestimation of the disease burden due to the limitations of the current system for the control of this vaccine-preventable disease. It is recommended that surveillance of the disease and the vaccination program should be further strengthened

WSPID19-0072 E-Poster Presentations E-Poster discussion - Stream 4A: Miscellaneous Viral infections II

THERAPEUTIC TARGETING OF HAND, FOOT AND MOUTH DISEASE (HFMD) CAUSING HUMAN ENTEROVIRUS INTERNAL RIBOSOMAL ENTRY SITE (IRES) RNA

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Background:

The viral IRES elements were initially identified in *Picornaviridae* RNA viruses with long 5' UTRs lacking a 5' cap structure in the viral RNA genome. Through folding into secondary RNA structures, IRES substitutes the functions of some host translation initiation factors, thereby permitting cap-independent translation of viral proteins.

Aims:

To identify specific antiviral targeting human enterovirus IRES.

Methods:

A viral target specific antiviral screen using a natural product flavonoid library was performed to identify potent inhibitor against the HFMD causing human enterovirus virus IRES. The mechanism of inhibition was elucidated with a combination of molecular virology, gene silencing and resistant mutant generation assays.

Results:

Prunin was identified as a potent inhibitor of human enterovirus (HEVA71) IRES. Prunin can disrupt viral protein and RNA synthesis and acted as broad spectrum antiviral against Enteroviruses A and B. Continuous HEVA71 passaging with prunin yielded HEVA71-resistant mutants, in which 5 mutations were mapped to the IRES region. Knockdown studies revealed that the mutations allowed HEVA71 to overcome drug-induced suppression via differentially regulating recruitments of IRES-trans acting factors (ITAFs), namely Sam68 and hnRNPK, without affecting hnRNPA1 interaction. Furthermore, prunin effectively impeded HEVA71-associated clinical symptoms and mortality in HEVA71-infected BALB/c mice. Interestingly, prunin suppressed Hepatitis C virus (HCV) at higher concentrations, suggesting a similar mechanism of drug-mediated IRES inhibition on both viruses.

Conclusion:

These discoveries establish prunin as a suitable clinical candidate for further development as a potent antiviral to combat HFMD.

WSPID19-0109 E-Poster Presentations E-Poster discussion - Stream 4A: Miscellaneous Viral infections II

FATAL ADENOVIRAL PNEUMONIA IN PEDIATRIC INTENSIVE CARE UNIT (PICU)-A SINGLE CENTRE STUDY FROM INDIA DURING AN OUTBREAK

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Background:

Adenoviral respiratory tract infection in immnuocompetent kids had been considered as a trivial self limiting infection. In our part of the country there had been an outbreak of adenovirus infection where we got fatal adenoviral respiratory tract infection in immunocompetent children with high mortality and sequalae.

Aims:

To study the presentation, complications, outcome and long term sequelae of adenoviral respiratory tract infection among immunocompetent children during an outbreak of adenoviral infection.

Methods:

Children admitted in the hospital and tested positive for adenovirus in nasopharyngeal swab or Bronchoalveolar lavage by PCR had been included in the study. Those who have needed PICU admission further analysed and studied.

Results:

96 children had been tested positive for adenovirus during the outbreak(January 2019 to April 2019). Among them 33 needed PICU admission with a male:female ratio of 3.7:1 with 75% kids were below 12 months of age.19 (57%) had raised TLC and 22 (67%) had raised CRP. 29(88%) patients needed some sorts of respiratory supports with a mortality rate of 27%. Post discharge, 84% of kids developed recurrent respiratory symptoms. HRCT could be done in 8 patients during follow up and 7 showed features suggestive of bronchiolitis obliterans.

Conclusion:

Adenoviral pneumonia could be fatal even in immunocompetent kids as in our study one third patient needed PICU admission and 90% needed respiratory support with a high mortality rate of 27%. A higher TLC and CRP, bilateral patchy opacities on CXR and age below 1 year associated with high mortality. 84% of survivors had recurrent respiratory symptoms.

WSPID19-0288 E-Poster Presentations E-Poster discussion - Stream 4A: Miscellaneous Viral infections II

SURVEILLANCE, EPIDEMIOLOGY, AND PATHOGEN SPECTRUM OF HAND, FOOT, AND MOUTH DISEASE IN MAINLAND OF CHINA FROM 2008 TO 2017

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Background:

Hand, foot and mouth disease (HFMD) was reported in May 2, 2008 to be the 38th legally notifiable disease in China's National Notifiable Disease Reporting and Surveillance System. In order to solve the infection, an extensive three-level HFMD surveillance laboratory network was established.

Aims:

To further elucidate the detailed gepidemic features of hand, foot and mouth disease in mainland of china.

Methods:

the framework of that network is assessed and the incidence of HFMD in China from 2008 to 2017 is reported using a descriptive epidemiologic method.

Results:

Nationally, 18,184,834 HFMD cases, including 152,436 severe cases and 3,633 fatal cases, were reported in mainland of China. The average annual incidence in the population was 133.99/100,000 people. The incidence and mortality rates of HFMD were the highest in children aged 1–2 years. The numbers of reported cases fluctuated, with a high incidence observed every 2 years. An overall increase in the number of reported cases was also observed throughout the study period. Despite this, the incidence of severe cases and the mortality rate have been decreasing. High-risk regions are located in southern, eastern, and central China.Different proportions of enterovirus serotypes were observed during the studied years. The predominant enterovirus varies from year to year, and EV-A71 is the dominant serotype associated with severe and fatal cases.

Conclusion:

A highly sensitive and efficient network is the basis for preventing and controlling the disease, and it is extremely necessary and important to continuously conduct extensive virological surveillance for HFMD.

WSPID19-0302 E-Poster Presentations E-Poster discussion - Stream 4A: Miscellaneous Viral infections II

MOLECULAR CHARACTERIZATIONOF RESPIRATORY SYNCYTIAL VIRUS CIRCULATING IN TUNISIA BETWEEN 2015 AND 2018

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Background:

Human respiratory syncytial virus (HRSV) is a major cause of lower respiratory tract infections (LRTI) in children worldwide, but little is known about RSV infection in Tunisia.

Aims:

The aim of the present study was to investigate the genetic variability of the glycoprotein G (GPG) gene in HRSV strains prevalent in Tunisia.

Methods:

Nasopharyngeal aspirates (NPA) were collected from hospitalized infants and neonates with LRTI. All specimens were screened for HRSV by Direct Immunofluorescence Assay (DIFA).Randomly selected positive samples were subjected to reverse transcription polymerase chain reaction (RT-PCR) amplifying the second hyper-variable region (2nd HVR) of the GPG gene of HRSV and a phylogenetic analysis was conducted.

Results:

Among 1417 samples collected between 2015 and 2018, 394 (27.8%) were positive for HRSV by DIFA. Analysis of 62randomly selected HRSV strains revealed that Group A HRSV (82.2%) predominated during the study as compared to group B HRSV (17.8%). The phylogenetic analysis showed that three genotypes of HRSV-A were identified during the study period: ON1, NA1 and NA2. The ON1 genotype with a 72-nucleotide duplication in the 2nd HVR of the GPG gene was the predominant genotype (77.4%), while 1.6% of the remaining strains clustered NA1 genotype and 3.2% clustered NA2 genotype. Concerning Tunisian HRSV group B strains, all sequences contained a 60-nt insertion in the 2ndHVR and clustered BA10 genotype.

Conclusion:

Since viruses continuously evolve, continued surveillance of HRSV strains circulating worldwide is required to aid in the development of reliable diagnostics and future HRSV therapeutics or vaccines.

WSPID19-0113 E-Poster Presentations E-Poster discussion - Stream 4A: Community Acquired Bacterial Infections II

THE IMPACT OF MACROLIDE RESISTANCE ON THE CLINICAL MANIFESTATIONS OF MYCOPLASMA PNEUMONIAE INFECTION – A META-ANALYSIS

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Background:

Mycoplasma pneumoniae is one the major causative pathogens of community acquired pneumonia in school age children. Macrolide is the first line empirical treatment. However, increased macrolide resistance has been widely reported.

Aims:

We initiate this study to compared the difference of clinical manifestations between macrolidesensitive *Mycoplasma pneumoniae* (MSMP) and macrolide-resistant *Mycoplasma pneumoniae* (MRMP).

Methods:

We searched the database of PubMed, Embase and reference lists of relevant studies for studies of macrolide-resistant *Mycoplasma pneumoniae*. The clinical features in our study included total febrile duration, length of hospital stay, extrapulmonary symptoms and CXR findings. The outcomes after macrolide treatment were also collected. The results were pooled together and meta-analysis was conducted by using random effect model.

Results:

A total of 26 studies were eligible in this meta-analysis. The results of meta-analysis showed that MRMP has longer febrile duration (17 studies, SMD 0.476, 95% CI 0.360 to 0.591) and length of hospital stay (13 studies, SMD 0.479, 95% CI 0.352 to 0.606). Besides, the defervescence time after macrolide treatment is longer in MRMP (8 studies, SMD 0.684, 95% CI 0.382 to 0.987). The risk of fever for more than 48 hours after macrolide treatment is also significantly increased (odds ratio 9.778, 95% CI 6.30 to 15.177).

Conclusion:

MRMP infections are associated with longer hospitalization and clinical course. The role of macrolide resistance should be taken into consideration during treatment of *Mycoplasma pneumoniae* infection.

WSPID19-0280 E-Poster Presentations E-Poster discussion - Stream 4A: Community Acquired Bacterial Infections II

FACTORS ASSOCIATED WITH THE OUTCOME OF SEVERE PNEUMONIA IN CHILDREN LESS THAN 5 YEARS OLD ADMITTED AT A TERTIARY HOSPITAL FROM 2015-2016 *M.Z. Alcantara*¹, *V.C.I. Mendoza*¹

¹Far Eastern University Dr Nicanor Reyes Medical Foundation, Department of Child Health, Quezon City, Philippines

Background:

Pneumonia is known to be the single major cause of death in children less than 5 years old and most of these deaths occur in developing countries. The Philippines is one of the 15 countries that together account for 75% of childhood pneumonia cases worldwide.

Aims:

To determine the factors associated with the outcome of severe pneumonia in children less than 5 years old.

Methods:

An analytical cross-sectional study of children under 5 years old with severe pneumonia was done. Charts of patients with severe pneumonia from 2015-2016 were gathered until sample size of 184 was met. Univariate analysis using mean and standard deviation was done to describe the actual hemoglobin level. Chi square and logistic regression were used in the analysis of the association of categorical risk factors with the outcome of severe pneumonia. To determine the independent contribution of each factor towards each of the three outcomes, multiple logistic regression analysis was utilized.

Results:

Those with abnormal WBC count had 6x more likely to require change of antibiotic than those with normal WBC count. While those who were undernourished had 4x more likely to require change in antibiotic than those who were not undernourished. After multivariate analysis, abnormal WBC count (odds ratio [OR] 7.302, 95% CI 2.071-25.752)and nutritional status (odds ratio [OR] 5.467, 95% CI 1.301-22.982)were found to be significantly associated with need for change in antibiotic.

Conclusion:

The results showed that abnormal WBC count and those who were undernourished were significantly associated with the need for antibiotic change.

WSPID19-0289 E-Poster Presentations E-Poster discussion - Stream 4A: Community Acquired Bacterial Infections II

IMPACT OF TYPE OF FEEDING AMONG INFANTS AGES 6 MONTHS TO 12 MONTHS WITH PNEUMONIA DURING THE YEAR OF 2011-2015: A CASE CONTROL STUDY D.G. Genuino-Magtoto¹

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Background:

Pneumonia is the top cause of death in post-neonatal period (1-59 months). In the Philippines, pneumonia is the leading cause of post-neonatal deaths and ranked 5th among all neonatal (<1 month) deaths in the year 2010. The ideal food for infants and newborns is breast milk. The WHO recommends exclusive breastfeeding for the first 6 months of life for it gives the complete nutrients the infant requires for healthy development. It is safe and protective from common childhood illnesses such as pneumonia.

Aims:

To determine the association between type of infant feedings with the development of pneumonia among patients 6 months to 12 months.

Methods:

Case control study was used. Cases were 169 children ages 6 months to 12 months admitted due to pneumonia at FEU-NRMF during the year 2011 to 2015. Controls were 392 children ages 6 months to 12 months seen at the FEU-NRMF Outpatient Department who were considered well or with mild viral illness (acute upper respiratory tract infection or viral acute gastroenteritis).

Results:

Of the 561 subjects, 169 were cases and 392 were controls. Among the cases, 72.2% were given non-exclusive breastfeeding (mixed fed and never breastfed) and 27.8% were exclusive breastfeeding. Among the controls, 74.7% were non-exclusive breastfeeding and 25.2% were exclusive breastfeeding. Infants who were non-exclusive breastfeeding were 1.14 times (OR 1.14, 95% CI 0.759-1.712, p value of 0.401) more likely to be admitted due to pneumonia than those receiving exclusive breastfeeding, although this was not significant.

Conclusion:

Type of feeding was not associated with admission for pneumonia.

WSPID19-0423 E-Poster Presentations E-Poster discussion - Stream 4A: Community Acquired Bacterial Infections II

ANTIBIOTIC PRESCRIPTIONS IN ACUTE OTITIS MEDIA AND PHARYNGITIS IN ITALIAN PEDIATRIC OUTPATIENTS

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Background:

Acute otitis media (AOM) and pharyngitis are very common infections in children and adolescents. Italy is one of the European countries with the highest rate of antibiotic prescriptions.

Aims:

The aim of this study is to describe first-line treatment approaches for AOM and pharyngitis in primary care settings in Italy.

Methods:

The study is a secondary data analysis using data from outpatients aged 0-14 in Italy. Prescriptions per antibiotic group, per age group and per calendar year were described as percentages. "Wait and see" approach rate for AOM test usage and results for pharyngitis were described as well.

Results:

We identified 120338 children between January 2010 and December 2015; 30394 (mean age 44 months) had at least one AOM diagnosis (n=54943) and 52341 (mean age 5 years) had at least one pharyngitis diagnosis (n = 126098). 81.5% of AOM diagnoses were treated with an antibiotic within 48 hours (amoxicillin and amoxicillin/clavulanate) and the "wait and see" approach was adopted in 18.5% of cases.The trend over time shows an increase in broad spectrum antibiotics in the last year (2015) (Fig 1).



79620 (63%) cases of pharyngitis were treated and 56% of GABHS pharyngitis confirmed by rapid test were treated with amoxicillin. The ones not test confirmed were treated mainly with broad spectrum antibiotics (Table 1).

| GABHS pharyngitis (N = 37929) | | | | | | |
|----------------------------------|-------|--------|------|--------|-------|--------|
| | | | | | | |
| | Ν | (%) | N | (%) | N | (%) |
| Amoxicillin | 10602 | (42.5) | 5438 | (55.8) | 16040 | (46.3) |
| CV-Amoxicillin | 8004 | (32.1) | 2341 | (24) | 10345 | (29.8) |
| Cephalosporins - III gen. | 4022 | (16.1) | 1127 | (11.6) | 5149 | (14.9) |
| Cephalosporins - II gen. | 1349 | (5.4) | 389 | (4) | 1738 | (5) |
| Macrolides/Lincosamides | 925 | (3.7) | 449 | (4.6) | 1374 | (4) |
| Other 4 | 20 | (0.1) | 5 | (0.1) | 25 | (0.1) |
| Total treated | 24922 | (90.2) | 9749 | (94.7) | 34671 | (91.4) |
| Total not treated | 2708 | (9.8) | 550 | (5.3) | 3258 | (8.6) |

Conclusion:

Despite guidance to use the 'wait and see' approach in the age group analyzed, this strategy is not often used for AOM. Broad-spectrum antibiotic prescription was more frequent when pharyngitis was not confirmed by rapid test.

WSPID19-0144 E-Poster Presentations E-Poster discussion - Stream 4A: Neonatal Infections II

AN INVESTIGATION ON THE CAUSES OF NEONATAL EMERGENCY ROOM VISITS

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Background:

In neonates, fever, indicated by a body temperature over 38°C, is a key symptom that suggests a serious bacterial infection.

Aims:

The aim of this study was to investigate reasons for neonatal visits to the Pediatric Emergency Medical Center (PEMC) and identify causative organisms in febrile neonates.

Methods:

A total of 412 neonates who visited Bun-dang CHA PEMC from January to December 2017 were included in this study. Clinical features and causative pathogens were analyzed by performing a retrospective chart review. Causative pathogens were identified by conducting a gram stain and cultures, rapid antigen tests, or polymerase chain reaction.

Results:

Seventy-eight (19%) out of 412 neonates who visited PEMC during the study period had a fever. Of the 78 patients, 31 (40%) were diagnosed with causative pathogens. Bacterial and viral infections were confirmed in 8 (10%) and 23 neonates (29%), respectively. One patient had *Streptococcus agalactiae* infection, which was identified through a blood culture. *Escherichia coli* was detected in urine cultures of 7 patients. Enterovirus was found in the cerebrospinal fluid of one patient (4%). Rotavirus was detected in the feces of 8 patients (34%). Respiratory syncytial virus, rhinovirus A/B/C, and parainfluenza virus were detected in nasopharyngeal specimens of 9 patients (39%), 4 patients (17%), and 1 patient (4%), respectively.

Conclusion:

Approximately 10% of the febrile neonates who visited PEMC were diagnosed with a bacterial infection. Therefore, inpatient treatments, such as intravenous antibiotics, are essential for patients who visit the emergency room.

WSPID19-0167 E-Poster Presentations E-Poster discussion - Stream 4A: Neonatal Infections II

THE ROLE OF OF NEUTROPHIL TO LYMPHOCYTE RATIO AND PLATELET TO LYMPHOCYTE RATIO IN VERY LOW BIRTH WEIGHT INFANTS IN DIAGNOSING SEPSIS.-RETROSPECTIVE OBSERVATIONAL STUDY

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Background:

The diagnosis of sepsis in the infants is difficult because most of signs of sepsis are associated with uncertain, noninfectious conditions. The lymphocyte to neutrophil ratio (LNR) is aneasily accessible marker that is reported to represent disease severity in adult trials

Aims:

To identify the association of neutrophil to lymphocyte ratio (NLR) and the platelet to lymphocyte ratio (PLR) in diagnosis of early-onset sepsis (EOS) in Very low birth weight (VLBW) babies

Methods:

The trial was performed at teritiarry care hospital from Jan 2017 to dec 2018.Of 1247 babies admitted in NICU, 721 babies were with birth weights ≤ 1,500 grams and without birth asphyxia,congenital anomalies,preeclamptic/diabetic mother were 643 which were included in study. The average postnatal age of assessment was 48 hours.babies were devided in to 3 groups as 1. Culture positive sepsis(81(12.5%)) 2. Sepsis screen (CRP,TLC,ANC,I/T RATIO,mESR) sepsis / suspected sepsis (375 (58.3%)) 3.Risk factors positive with No sepsis (187 (29.08%))

Results:

Group 1 had significantly lower neutrophil counts, higher NLRs, PLRs, C-reactive proteinswhen compared to group 2 and 3.(p-0.002,p-0.001) .There wasalso statistical difference when group 2 and 3 were inter compared (p0.04). An NLR of 5.92 was determined as predictive cut off value of neonate EOS (culture proven, screen positive, clinicall suspicion)(sensitivity 90.4%; specificity 99%; AUC -operating characteristic curve 0.96; P=0.008). A PLR of 79 .05 determined as predictive cutoff value of neonate EOS (sensitivity 93.3; specificity 99.9%; AOC-operating characteristic curve 0.93; P=0.001).

Conclusion:

A positive association NLRs and PLRs in VLBW EONS can be used as adjuant diagnostic modality to rationally treat the neonates

WSPID19-0385 E-Poster Presentations E-Poster discussion - Stream 4A: Neonatal Infections II

PERTUSSIS IN IRAN: MOLECULAR CONFIRMED PERTUSSIS CASES DURING ONE YEAR

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Background:

Pertussis vaccination is carried out in Iranian children in 2, 4 and 6 months, and two boosters in 18 months and six years old (DTPw). The pertussis surveillance system has started less than two decades in Iran.

Aims:

The aim of this study was to determine the incidence of *B. pertussis* in Iranian Suspected pertussis patients in recent year.

Methods:

Of the 1150 suspected cases of pertussis, two nasopharyngeal samples were taken from April 2018 -April 2019, one of the samples was cultured on Regan-Lowe agar and the other for molecular diagnosis with targets of *IS481*, *IS1002* and *IS1001* to detect *B. pertussis* and *B. parapertussis*. *ptxP* and *hIS1001* were also used for confirming of *B. pertussis* and *B. holmesii*, respectively.

Results:

230 (%20)of the suspected samples were positive as *B. pertussis* by Real Time PCR, and 8 (%0.7) by culture, Of *B. pertussis* positive culture samples, two of them were isolated from 26 and 46 men years old from different provinces. Most of the molecular confirmed cases, 46%, belonged to children under 6 months with 30 cases under one month and about 20% belonged to adults more than twenty years old and show increase rate in compare with previous years.

Conclusion:

According to our results, *B. pertussis* like other countries is circulating among our population in all age groups. Due to the positive cases in population more than 6 years old and high bacterial transmission probability, the close contacts of patients under 6 months should be investigated.

WSPID19-0471 **E-Poster Presentations** E-Poster discussion - Stream 4A: Neonatal Infections II

ROLE OF ROUTINE BACTERIAL DNA MEASUREMENT IN VERY LOW BIRTH WEIGHT INFANTS WITH HIGH RISK OF EARLY ONSET SEPSIS.

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Background:

Early onset sepsis (EOS) still remains challenging issue in very low birth weight infants (VLBW). Accurate and rapid diagnosis of EOS etiology is essential for the prognosis and rationale use of antibiotics.

Aims:

The aim was to evaluate the reliability of multiplex real-time PCR assay for the bacterial DNA detection in VLBW infants with high risk of EOS.

Methods:

A prospective study was conducted in the Level III unit. VLBW infants with high-risk of EOS were included. Polymerase Chain Reaction (PCR) for quantitative bacterial DNA load (BDL) detection was measured 2 hrs after delivery. Antibiotics were indicated in patients with clinical and/or laboratory signs of infection.

Results:

82 infants were analyzed in the study (mean GA 27.0 weeks and mean BW 990 grams). Antibiotics were started in 39 infants (50%) for suspected EOS. PCR test was positive in 19 newborns (24%). Escherichia coli was detected as the most frequent strain - 12 episodes (63%). Moreover, we found statistically significant correlation between E.coli maternal colonization and E.coli DNA in infants (44% vs 8%, p=0.001). In contrast, 39 (50%) patients had no clinical and/or laboratory signs of infection but 13 (33%) of them were BDL positive. We found no association between the BDL results and the inflammatory parameters.

Conclusion:

We found no correlation of bacterial DNA presence and proven EOS leading to rationale in antibiotics use. Concordant bacterial DNA was significantly more frequently associated with maternal than neonatal bacterial colonization and blood stream infection. Supported by the research project NV17-31403A.

WSPID19-0058 E-Poster Presentations E-Poster discussion - Stream 1B: Vaccine Coverage and Uptake I

ACCEPTABILITY OF THE DENGUE VACCINATION PROGRAM AMONG PARENTS AND GUARDIANS IN AN URBAN POOR SETTING IN QUEZON CITY, PHILIPPINES: AN IMPLEMENTATION STUDY

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Background:

Background: The Philippines introduced a public dengue vaccination in 2016 and has since suspended the program amidst a vaccine controversy.

Aims:

Aim: To illustrate the acceptability of the dengue vaccination among parents and guardians before and after program suspension in an urban poor setting.

Methods:

Method: The research used a qualitative study triangulated with a convergent mixed method and was conducted in Quezon City, Philippines. Initially, 12 in-depth interviews were conducted with those who consented and refused to vaccination. Purposive-criterion sampling was used. The results were used to design a questionnaire on vaccine coherence, communication and a discussion guide. There were 41 respondents to the questionnaire. All instruments were used in 5 focus group discussions in 5 locations post-program suspension among who previously consented. Thematic analysis was used for qualitative data and descriptive statistics for quantitative data.

Results:

Results: Key themes identified were parental and guardian's trust in public health institutions, parental experience in dealing with dengue infection and vaccination and communication received by the parents. Respondents had good knowledge on dengue, dengue prevention and post-suspension information. The local health staff was the most trusted information source and information need centered on vaccine safety. Trust on the vaccine, the vaccinators and the vaccination program has been eroded due to widespread negative vaccine messages in media.

Conclusion:

Conclusions: Dengue vaccine acceptability was linked to parental trust in public health institutions, previous experience with dengue infection and vaccination, and the vaccine messages received by the parents.

WSPID19-0162 E-Poster Presentations E-Poster discussion - Stream 1B: Vaccine Coverage and Uptake I

EFFECT OF CALL REMINDERS, SHORT MESSAGE SERVICES (SMS) REMINDERS, AND SMS IMMUNIZATION FACTS ON CHILDHOOD ROUTINE IMMUNIZATION COMPLETION IN ILORIN, NIGERIA

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Background:

Reminders via mobile devices deployed as short message services (SMS) or calls have been identified to be a useful strategy in improving routine immunization uptake in several countries including Africa. However a dearth of studies comparing reminders with SMS health education about immunization facts exists.

Aims:

To identify the immunization completion rates at 12 months and timeliness of appointments with reminders, (calls or SMS), SMS health education and the routine care in llorin, Nigeria.

Methods:

Mother-infant pairs presenting for the first vaccination appointment were randomized into four (3 intervention, 1 control) groups, each consisting of 140 participants. Intervention groups were reminders via calls (A), reminders via SMS (B), immunization fact SMS messages (C) and controls on usual care (D). Reminders were made a day prior to the appointment while SMS immunization facts were sent at five weeks, nine weeks and eight month. Appropriate timing was defined as the scheduled visit ±3 days.

Results:

540/560 mother-infant pairs completed the study with M: F ratio of 1.1:1. The immunization completion rates at 12 months were 99.2%, 99.3%, 97% and 90.4% for Groups A, B, C and D respectively. At 14 weeks, only Group A presented within an appropriate time when compared with controls, OR 3.37, 95%C.I=1.80-6.33. Compared with controls, the odds of presenting at an appropriate time was 14x, 3x and 2x for Groups A, B and C respectively at the 9 months appointment

Conclusion:

Reminders/SMS immunization facts improve vaccination completion rates. Appropriate timing of presentation was however higher among the reminder groups

WSPID19-0184 E-Poster Presentations E-Poster discussion - Stream 1B: Vaccine Coverage and Uptake I

STUDY OF REASONS FOR INCOMPLETE VACCINATIONS & VACCINE ACCEPTANCE STRATEGY AMONG CHILDREN IN A URBAN HEALTH CENTRE IN INDIA

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Background:

Despite the success of expanded program on immunization (EPI) many vaccine preventable diseases are still prevalent in developing countries like India. Strategies based on the sociocultural behaviour of the community are important for the success of the program. The burden of these diseases highlights the significant human cost of the poor vaccination coverage among children in India.

Aims:

To assess the vaccination coverage, factors influencing immunisation status of children and reasons for incomplete immunisation.

Methods:

Descriptive study of 378 patients at Manipal Hospital, Bangalore between September 2017 – May 2018. Reason for incomplete/ partial immunisation were documented. Chi-square test & Independent t test were used. Analysis done using SPSS version 18.0.

Results:

Children up to 1 year of age were 56.7 % completely immunised; began to decline to 39.6% in the age group 1-3 years, 27.5% for children 3-5 years, and only 7.4% in the age group 5-12 years. None of the teenage group were completely immunised, which was statistically significant (p < 0.001). Rates of decline in complete vaccination from 6 weeks to ten weeks of life was found to be minimal (1.5%). Poor awareness of age related vaccine, financial issue, child being ill and unable to come for vaccination for social reasons were the reasons for missed vaccines.

Conclusion:

Incomplete immunization was a major concern of primary immunization in children. Socio demographic factors had a significant influence on the immunization status. . Comprehensive strategy to bring out effective changes in the attitude & practice regarding immunization is the need of the hour.

WSPID19-0271 E-Poster Presentations E-Poster discussion - Stream 1B: Vaccine Coverage and Uptake I

ROLE OF A FULLY LIQUID OR READY-TO-USE VACCINE AND VACCINES THAT REQUIRE RECONSTITUTION IN MINIMIZATION OF VACCINATION ERRORS: FOCUSED LITERATURE REVIEW.

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Background:

The optimization of immunization practises is crucial for the success of vaccination. Vaccination errors may decrease the impact of immunization on societal and individual levels. The reconstitution (dissolution of lyophilized vaccines by solvents or liquid vaccines) may lead to administration errors.

Aims:

Objective is to assess the quantity and quality of vaccination errors in vaccines requiring reconstitution versus fully liquid or ready-to-use vaccines.

Methods:

Focused literature search of Embase, DOC Search, and hand searching of the bibliography of included studies and previously published reviews (including clinical and observational studies) was performed to identify studies on vaccination errors, preparation time, and health care professional (HCP) satisfaction.

Results:

We identified 24 relevant articles out of 1056 records initially found. After full-text screening, 12 articles that met the pre-defined criteria were included in this review. 5 articles were non-comparative studies in which data was retrieved from reporting databases, 2 were case reports/series, 1 was cross-sectional survey studies, and 4 were time-motion studies, including one randomized cross-over study. 7 of 12 articles reported vaccination errors. Only one study directly compared fully liquid versus non-fully liquid vaccines, in this study fewer HCPs made mistakes preparing fully liquid vaccine. Preparation time was reported in 4 articles and was

shown less for ready-to-use vaccines versus vaccines requiring reconstitution. 3 articles showed that HCPs preferred fully liquid vaccines over non-fully liquid vaccines.

Conclusion:

Focused review suggests that fully liquid vaccines are associated with fewer vaccination errors, less preparation time, and higher satisfaction among HCPs than vaccine requiring reconstitution; more research is required.

WSPID19-0542 E-Poster Presentations E-Poster discussion - Stream 1B: Vaccine Coverage and Uptake I

ASIAN AMERICANS DEMONSTRATE HPV VACCINE HESITANCY IN CDC RECOMMENDED VACCINE SCHEDULE IN A COMPREHENSIVE PEDIATRIC CENTER, DELAWARE (2018)

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Background:

Human papilloma virus (HPV) is causal in cervical cancer incidence, with the incidence highest among Hispanics/Latino in the United States. While Asian demonstrate highest compliance in CDC recommended MMR vaccine among children, the prevalence of HPV vaccine is lowest among Asian Americans.

Aims:

The current study aimed to assess the prevalence of CDC recommended HPV vaccine schedule among US children by race and ethnicity and to explain the racial/ethnic variance therein.

Methods:

A cross-sectional design was used to access the prevalence of childhood vaccine use at the largest pediatric institution in the state of Delaware. While chi square was to examine the dependence of the study variables by race/ethnicity, binomial regression model was utilized as a predictive model for HPV vaccine use.

Results:

There was overall 92.3% compliance to the recommended schedule. A significant racial variability in MMR as well as HBV were observed, Asian (98.5%), AA (98.4%) and White (97.1%), X2 (7)=20.6, p=7)=20.6, p=0.01, and highest compliance in the receipt of varicella (Asians [99.3%], AA [98.6%], and White [97.1%], X2 (7)=18.7, p=0.01, and toxoid poliovirus (Asians [100%], AA [99.4%] and White [99%], X2 (7)=12.3, p=0.09. Asians (97.0%) relative to AA (93.1%) and White (91%) demonstrated the highest compliance in all vaccines combined, X 2 (7) =24.5, p=0.001. The receipt of HPV was lowest among Asians (57.6%), intermediate among blacks (71.6%) and highest among whites, 82.9%. X2 (7)= 19.3, p < 0.001.

Conclusion:

While Asians demonstrate highest compliance in the CDC recommended childhood vaccine, HPV recommended schedule indicated lowest compliance among Asian Americans.

WSPID19-0119 E-Poster Presentations E-Poster discussion - Stream 1B: Viral Infections and Antiviral Vaccines

IMMUNOGENICITY AND SAFETY OF AN ADJUVANTED INACTIVATED POLIO VACCINE, IPV-AL, IN THE EPI AND 2, 4, 6 MONTH VACCINATION SCHEDULES IN ASIA AND CENTRAL AMERICA

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Background:

Different polio immunisation schedules are used in various regions and countries with respect to both age at first vaccination and interval between vaccinations. An adjuvanted inactivated polio vaccine (IPV-AI), obtained by adsorption of a reduced dose of inactivated poliovirus to an aluminium hydroxide adjuvant, can help mitigate global supply and cost constraints of IPV.

Aims:

The objective of these trials was to demonstrate the non-inferiority of IPV-AI to standard IPV in two vaccination schedules and in two countries.

Methods:

Phase 3 trials investigating the safety and immunogenicity of IPV-AI at 6, 10, 14 weeks (EPI schedule) followed by a booster dose at 9 months in the Philippines and 2, 4, 6 months followed by a booster dose at 15-18 months in Panama.

Results:

Seroconversion rates (defined as an antibody titre \geq 4-fold higher than the estimated maternal antibody titre and a titre \geq 8) evaluated one month after primary vaccination, with IPV-AI was greater than 96% across poliovirus types in the two trials. Non-inferiority of IPV-AI (predefined 10%-point limit) was confirmed. IPV-AI was well tolerated with a safety profile comparable to that of IPV in both trials. In both trials, robust booster responses were demonstrated following a fourth polio vaccination and post-booster geometric mean titres (GMTs) were higher than post-priming GMTs.

Conclusion:

Non-inferiority of IPV-AI to IPV with respect to seroconversion was confirmed and robust booster responses for all three serotypes of polio were demonstrated in two vaccination
schedules in Western Pacific Region and Region of the Americas. Both vaccines were safe and well tolerated.

WSPID19-0131 E-Poster Presentations E-Poster discussion - Stream 1B: Viral Infections and Antiviral Vaccines

IMPACT OF EV71 VACCINE IMMUNIZATION ON THE INCIDENCE OF HAND FOOT AND MOUTH DISEASE BASED ON TRANSMISSION DYNAMIC MODEL

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Background:

The introduction of enterovirus 71 (EV71) vaccine has reduced EV71-associated hand, foot and months disease (HFMD) in mainland China.

Aims:

It is important to consider the strategies to control HFMD through vaccination campaigns.

Methods:

Mass vaccination of EV71 vaccine has been implemented in children aged 6-71 months in September-October, 2016 in Xiangyang City, China. Weekly reports of HFMD cases before EV71 vaccine introduction (January, 2013-September, 2016) were used to fit timeseries Susceptible-Infected-Recovered (TSIR) models and to estimate the transmission dynamics parameters. HFMD incidence in October, 2016-Decmber, 2019 were predicted to investigate the potential impact of different vaccination strategies.

Results:

Based the simulation of TSIR model, the estimated seasonal transmission rate of HFMD peaked at 10-16 weeks and 36-40weeks. R0 was 2.21(IQR:1.96-2.50) for HFMD, 2.93(IQR:2.64-3.26) for EV71, and 1.97(IQR:1.79-2.16) for non-EV71. Compared to the predicted HFMD cases (10,238, IQR: 8,246-12,524) without EV71 vaccine introduction, the number of observed HFMD cases (5,240) in October, 2016-December, 2017, decreased by 48.82%. The number of EV71 cases predicted by TSIR model was 2,213 (IQR: 2,065-2,361), and the observed EV71 cases (127) reduced substantially. Mass vaccination combined routine vaccination can substantially reduce the incidence of cases infected with EV71. The number need to vaccinate (NNV) was higher than that of routine vaccination in the first year, but turned to be smaller in 3 years when 10% children aged 0-71months can be vaccinated in mass vaccination.

Conclusion:

About 10% children aged 0-71 months vaccinated in mass vaccination combined routine vaccination is better than simple routine vaccination for controlling HFMD.

WSPID19-0358 E-Poster Presentations E-Poster discussion - Stream 1B: Viral Infections and Antiviral Vaccines

ORAL COMBINATION VACCINE AGAINST ANTHRAX & HEPATITIS B: DEVELOPMENT & CHARACTERIZATION

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Background:

Infections are still leading cause of morbidity and mortality and most of which can be prevented by vaccination. However, there are too many vaccines to be administered, increasing cost of immunization. Combination vaccines can answer these problems by development of single vaccine containing all possible antigens.

Aims:

The goal of present study was to see the effect of 2 antigens when given in combination. Bilosomes can provide needle free, painless approach for immunization. Recombinant hepatitis-B surface antigen(HBsAg) and recombinant protective antigen(rPA) were candidate antigens.

Methods:

Bilosomes containing rPA and HBsAg were prepared by lipid cast film method. Antigen loaded bilosomes were characterized *in-vitro* for shape, size, antigen entrapment and stability in various body fluids. Fluorescence microscopy was done to confirm the uptake of bilosomes. The *in-vivo*study comprised of immunization of Balb/c mice and estimation of IgG response in serum and sIgA in various body secretions using specific ELISA.

Results:

Bilosomes formed were multilamellar and stable in gastric and intestinal fluids. Fluorescence microscopy suggested that bilosomes were taken up by gut associated lymphoid tissues. *In-vivo* data demonstrates that combination produced both systemic as well as mucosal antibody responses upon oral administration at higher dose levels as compared to intramuscular immunization but fail to produce any synergistic effect.

Conclusion:

When rPA and HBsAg given in combination, HBsAg(high dose) potentiates the production of anti-rPA antibody. Also they elicited measurable sIgA in mucosal secretions, while alum

adsorbed antigens failed to elicit such responses. The combination produced both systemic as well as mucosal antibody responses upon oral administration.

WSPID19-0383 E-Poster Presentations E-Poster discussion - Stream 1B: Viral Infections and Antiviral Vaccines

ADVERSE EVENTS FOLLOWING IMMUNIZATION WITH LIVE-ATTENUATED RECOMBINANT JAPANESE ENCEPHALITIS VACCINES IN TAIWAN, 2017-18

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Background:

Japanese Encephalitis (JE) is still a public health threat in Asia-Pacific region, with a casefatality rate around 20%. Taiwan has had a publicly funded national immunization program (NIP) using mouse-brain derived vaccines since 1968. The vaccine changed to a live-attenuated recombinant vaccine (JE-CV) since May 2017 with a coverage rate greater than 95%.

Aims:

This study aimed to characterize adverse events (AE) after JE-CV administration reported to National Adverse Drug Reactions (ADR) Reporting System, a spontaneous reporting system run by Taiwan Food and Drug Administration.

Methods:

AE reports were searched in ADR Reporting System involving subjects having received JE-CV from 1 May 2017 through 31 December 2018. There were 1.07 million doses distributed in Taiwan in this period.

Results:

There were 69 AEs reported by 32 subjects (13 girls, 19 boys), with a reporting rate of 6.4 AEs per 100,000 doses distributed. The mean age of recipients with at least an AE was 2.1 years. The most common AEs reported were fever (23/69, 33%), rashes (10/69, 14%), erythema (5/69, 7%), and loss of appetite (5/69, 7%). There were 2 serious adverse events reported. One was a 2-year-old boy with febrile seizures. The other was a 1.3-year-old girl with fever and generalized edema 7 days after vaccination. She was hospitalized due to acute renal failure. Both events were judged not related to JE-CV by independent experts.

Conclusion:

These post-licensure AE surveillance data continue to support the generally favorable safety profile of JE-CV.

WSPID19-0408 E-Poster Presentations E-Poster discussion - Stream 1B: Viral Infections and Antiviral Vaccines

A RANDOMIZED, DOUBLE-BLIND, ACTIVE-CONTROLLED PHASE III STUDY TO EVALUATE IMMUNOGENICITY AND SAFETY OF QUADRIVALENT INACTIVATED INFLUENZA VACCINE (QIV) IN HEALTHY CHILDREN AND ADOLESCENT

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Background:

The development of quadrivalent inactivated influenza vaccine (QIV) formulation for seasonal influenza vaccine is of interest in providing comprehensive protection against influenza B viruses.

Aims:

The purpose of the study was to evaluate the immunogenicity and safety of a QIV in healthy children and adolescents aged \geq 3 years to < 19 years.

Methods:

A total of 359 subjects in Republic of Korea were randomized 4:1 to receive either a QIV or a trivalent inactivated influenza vaccine (TIV). Hemagglutination inhibition antibody responses for each strain were assessed 28 days after the last dose. Safety profile was also evaluated.

Results:

The lower boundary of the two-sided 95% confidential interval (CI) for the seroconversion rate of the A/H1N1, A/H3N2, B/Yamagata and B/Victoria were 46.4%, 60.6%, 79.3%, and 57.1%, all of which exceeded the recommended 40%. The lower boundary of the two-sided 95% CI for the seroprotection rate of the A/H1N1, A/H3N2, B/Yamagata and B/Victoria were 84.1%, 95.5%, 95.1%, and 80.4%, all of which exceeded the recommended 70%. Those results meet the Ministry of Food and Drug Safety (MFDS) approval standards. The safety profile of study vaccine was comparable to that of the control. No vaccine related serious adverse events or deaths occurred.

Conclusion:

The new QIV offered immunogenicity that met the MFDS standards in healthy children and adolescents aged \geq 3 years to < 19 years. Its safety profile was also found to be similar to that of the control vaccine. It will offer broader protection against seasonal influenza than the existing trivalent influenza vaccines.

WSPID19-0489 E-Poster Presentations E-Poster discussion - Stream 1B: Viral Infections and Antiviral Vaccines

ALTERNATIVES: VACCINATION STRATEGIES TO PROTECT POPULATIONS IN THE FINAL STAGES OF POLIO ERADICATION

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Background:

The dramatic reduction in poliovirus incidence over the past decade has been driven by both routine immunisation (RI) and supplemental immunisation activities (SIAs). Whilst SIAs have been proven beneficial, the actual effectiveness of activities remains largely unknown and non-polio-endemic countries with under-immunised children remain at risk of circulating vaccine derived poliovirus outbreaks (cVDPVs).

Aims:

This project aims to: (1) improve subnational estimates of oral poliovirus vaccine (OPV) coverage in non-polio-endemic countries by combining cross-sectional survey data with acute flaccid paralysis surveillance data, and (2) measure the effectiveness of SIAs.

Methods:

Multiple data sources are integrated within a Bayesian spatial-temporal analysis: (1) Demographic and Health Surveys(DHS), (2) Multiple Indicator Cluster Surveys(MICS), and (3) Polio Information System(POLIS) data. Spatiotemporal analyses identify the spatially varying probability of being protected from poliomyelitis, while a nested mechanistic model measures SIA effectiveness.

Results:

Combining vaccination history from DHS and MICS with POLIS data shows that substantial spatial variation of immunity exists within countries and OPV dose-histories vary between data source. Our per-dose SIA mechanistic model highlights that in some contexts, SIAs alone can be as effective as RI, but often diminishing returns are exhibited, such that the effectiveness of the first SIA is high, but this effectiveness plateaus with subsequent activities.

Conclusion:

Combining multiple data sources has the potential to better inform estimates of population immunity and the effectiveness of SIAs, but disparate responses require interpretation. This is the first time, to our knowledge, that SIA effectiveness has been estimated, providing a critical tool for future work on paediatric vaccination.

WSPID19-0497 E-Poster Presentations E-Poster discussion - Stream 1B: Viral Infections and Antiviral Vaccines

IMMUNOGENICITY AND PERSISTENCE OF TRIVALENT MEASLES, MUMPS AND RUBELLA VACCINES: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background:

Despite the universal use of the two-dose trivalent measles-mumps and rubella (MMR) vaccine in recent decades, outbreaks still occur in highly vaccinated populations giving rise to concerns about primary and secondary failure of MMR vaccines.

Aims:

Determination of primary and secondary failure estimates for MMR vaccines through systematic review and meta-analysis.

Methods:

In this systematic review and meta-analysis, we searched PubMed (incl. MEDLINE), Web of Science and Embase for clinical, cohort or longitudinal studies restricted to English, published from the earliest dates to September 2018, relating to the immunogenicity and persistence of MMR vaccines. The primary outcomes were to estimate the seroconversion rates and waning rates, with a pooled estimate by random-effects meta-analysis using DerSimonian-Laird estimator for the between-study variability. This study is registered with PROSPERO, number CRD42019116705.

Results:

3250 unique studies were identified and 61 were eligible for analysis. The estimated overall seroconversion rates for measles, mumps and rubella are 0.963 [0.945, 0.978], 0.939 [0.910,0.963] and 0.976 [0.963,0.988] respectively. Seroconversion rates for different strains and detection tests were also obtained. The overall exponential waning rates for measles, mumps and rubella are 0.008 [0.004, 0.020], 0.021 [0.014, 0.030] and 0.016 [0.013, 0.018], respectively.

Conclusion:

Our meta-analysis provides important information to improve the accuracy of mathematical and statistical models that can help understand and predict the occurrence of measles, mumps and rubella outbreaks in countries with high vaccine uptake.

Funding: This project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (grant agreement 682540 — TransMID)

WSPID19-0522 E-Poster Presentations E-Poster discussion - Stream 1B: Viral Infections and Antiviral Vaccines

ASSESSMENT OF THE EFFECTIVENESS OF ONE DOSE OF CYD-TDV AMONG CHILDREN AGED 9-14 YEARS OLD IN THE PHILIPPINES: METHODOLOGY AND CURRENT STATUS

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Background:

Dengue fever is an important public health problem in the Philippines because of its widespread endemicity, minimal success of vector control strategies, possibility of repeat infections by four serotypes and potential for severe disease. The first dengue vaccine, CYD-TDV (Dengvaxia, Sanofi Pasteur) was licensed in the Philippines in 2015. From 2016 to 2017, the Philippines Department of Health (DOH) implemented a 3-dose dengue vaccination program among schoolchildren aged 9-14 years in three northern regions. In July 2017 a community-based dengue vaccination program of 9 to 14-year-old children was initiated in the island of Cebu. In November 2017 Sanofi Pasteur released new data on differential effects of CYD-TDV by dengue serostatus. DOH discontinued the dengue vaccination program with only a single dose offered in Cebu in December 2017.

Aims:

To assess the 5-year effectiveness of a dose of CYD-TDV against hospitalized virologically confirmed dengue (VCD).

Methods:

We are conducting a case-control study in Cebu. Children 9-14 years of age with suspected dengue, admitted to any of four participating public hospitals in Cebu are enrolled in the study. Details on febrile illness, socio-demographic information and blood for RT-PCR were obtained. Two age- and sex-matched neighborhood controls are enrolled for each VCD case. Receipt of CYD-TDV is ascertained in cases and controls by review of vaccination cards and confirmation in the DOH database.

Results:

As of 31 July 2019, we enrolled >480 clinically suspected dengue cases, of which >320 were VCD. We have also enrolled their corresponding controls.

Conclusion:

We present the methodology and status of recruitment.

WSPID19-0077 E-Poster Presentations E-Poster discussion - Stream 1B: HIV Infections

CLINICAL FEATURES OF GASTROINTESTINAL TRACT DAMAGE IN HIV-INFECTED CHILDREN

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Background:

Gastrointestinal tract damage is one of the central stages of the parthenogenesis of HIVinfection, with symptoms such as childhood backbone and adverse changes in the immune system, leading to an increase in the disease

Aims:

To study the clinical features of gastrointestinal disorders in HIV-infected children

Methods:

The study involved 50 children aged 1 to 18 years who were treated at the Clinic of the Republican AIDS Center in Tashkent. The study was conducted based on clinical, virological, immunological, bacteriological, PCR (polymerase chain reaction) methods

Results:

The study showed that in 3(6%)patients with HIV, oral cavity was detected. In children with HIV infection, recurrent erysleviral stomatitis (2 times per year) was detected in 17 (68%) children. Candidate esophageal cancer was recorder in 1(2%) patient. The patient was presented with signs such as pain and anguish behind the pelvis, discomfort when swallowed and difficulty swallowing, which led to anorexia. Gastritis was detected in 3(6%) patients, with nausea, abdominal pain and vomiting in children. In 10 (20%) children with HIV VHB, 12 (24%) VHC and 4 (8%) VHB+ VHC were detected. Cholecystitis in 8 (16%) was detected, in 1 (2%) patients with HIV have been diagnosed with lymphoma of the oral cavity. In 2 (4%) patients, Kaposi's sarcoma was detected in the bowel

Conclusion:

Thus, gastrointestinal tract damage is one of the leading symptoms of clinical manifestations in evaluating the disease progression and prognosis in HIV-infected patients

WSPID19-0093 E-Poster Presentations E-Poster discussion - Stream 1B: HIV Infections

HIV INCIDENCE IN CHILDREN IN THE ERA OF SUCCESSFUL PREVENTION OF MOTHER TO CHILD HIV TRANSMISSION (PMTCT)

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Background:

Ukraine is a country with highest HIV burden in Eastern Europe with incidence 340 per 100 000 people (1). The implementation prevention of mother-to-child transmission (PMTCT) programs in Ukraine decreased dramatically HIV transmission from 27.8% in 2001 to 3.3% in 2014 (2,3). Despite the effective PMTCT program, free antiretroviral therapy (ART) there are still gaps in the prevention HIV transmission from mother to child.

Aims:

To estimate the ways of transmission HIV in pediatric population of the Center "Clinic for treatment children with HIV/AIDS", to find out the reasons of HIV transmission from mother to child in the era of available access to testing and treatment HIV.

Methods:

The retrospective analysis of medical records of HIV positive children from o to 18 years old who first start ART in the Clinic from January till December 2018 was made.

Results:

The medical records of 60 patients were chosen. The median age of children was -6.8 years old, clinical stage 3 and 4 were in 67% patients, severe immune suppression was presented in 33%. The ways of transmission were: 2% -sexual, 2% - blood transfusion, 3% - the reason was unknown, in 93% - transmission HIV from mother to child. Among those who have vertical way of transmission mother was HIV negative during pregnancy in 43%.

Conclusion:

The main way of HIV transmission among children in our clinic was vertical. The main reasons of PMTCT failure were as follows:

- HIV negative mother's test during the pregnancy,

- hiding women HIV positive status and refusal of ART.

WSPID19-0105 E-Poster Presentations E-Poster discussion - Stream 1B: HIV Infections

A RETROSPECTIVE STUDY OF HIV OUTCOMES IN YOUNG PEOPLE DIAGNOSED UNDER 18 (U18) AT A UK CENTRE

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Background:

HIV is now a chronic treatable disease of childhood; further information is therefore needed on long-term outcomes.

Aims:

Describe a cohort of patients diagnosed with HIV U18 at a single UK centre over 30 years and compare outcomes in those perinatally (pHIV) and horizontally infected.

Methods:

A retrospective case note review with patients currently U15 excluded from further analysis.

Results:

102 cases were identified. pHIV : 21 (20.6%), 9 male, 12 female. Horizontal: 81 (79.4%) 59 male, 12 female: MSM 58%, heterosexual 27.2%,blood products 6.2%, IVDU 6.2% unknown 2.4%. Median age at last appointment was higher in the horizontal (31y) than pHIV (24y) group (p=0.005). 72 patients transferred into or out of the cohort.

In both horizontal and pHIV patients the following were prevalent: mental health conditions (74.2% vs 52.9%) smoking (69.6% vs 41.2%), alcohol>12 units/week (50% vs 35.3%) attendance issues (49% vs 52.9%) and medication non-concordance (64.3% vs 52.3%). Rates of STIs (74.2% vs 23.5%) (p= 0.0005) AIN/CIN (13vs0)(p=0.05) drug use (53.3% vs 1.3%)(p = 0.0004) and homelessness (41.9% vs 9.5%)(p = 0.018) were significantly higher in the horizontal group.

Ten patients died, mean age 29 years: one pHIV (suicide) and nine horizontal (6 HIV, 1 malignancy, 1 MI, 1 bowel-obstruction). Between 2004-2019 36.3% experienced viral escape, yet most recent viral load within the last year was undetectable in 93% (89.5% vs 100 %).

Conclusion:

Young people with HIV are a vulnerable group who transfer cohorts frequently. Despite differences in demographics between pHIV and horizontal patients, adherence, attendance and addiction issues are prevalent.

WSPID19-0258 E-Poster Presentations E-Poster discussion - Stream 1B: HIV Infections

IMMUNE ACTIVATION IN PERINATALLY INFECTED HIV-1 PATIENTS WITH MICROALBUMINURIA

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Background:

Renal disorders are among the most common non-infectious complications in HIV patients. Immune activation is significantly associated with proteinuria in HIV+ adult patients.

Aims:

Determine the prevalence and persistence of albuminuria in a cohort of perinatally HIV-1 infected patients over a 9-year interval in the era of cART and investigate correlations between albuminuria and clinical and selected laboratory findings.

Methods:

Retrospective study of 71 HIV+ patients followed in an urban pediatric HIV clinic in Houston, Texas between October 2007 and August 2016. Demographic, clinical and laboratory data were assembled, analyzed and compared between subjects with persistent albuminuria: defined as presence of microalbumin creatinine ratio > 30 mg/g on at least 2 occasions separated by at least 3 months with those without albuminuria.

Results:

23% of patients (16/71) met the definition of persistent albuminuria. In univariate analysis, patients with albuminuria had significantly higher CD8+ T cell activation and lower CD4+ T cell nadir. Multivariate analysis demonstrated that increased albuminuria independently associated with increased age and CD8+ T cell activation measured as CD8+HLA DR+ T cell%.

| | Incidence rate ratio | p-value | 95% CI |
|------------|----------------------|---------|-------------|
| Age, years | | | |
| <11 | 1.17 | 0.514 | (0.73-1.88) |
| 11-17 | Ref | Ref | Ref |
| 18+ | 1.98 | 0.027 | (1.08-3.61) |
| Race | | | |
| Black | 0.92 | 0.835 | (0.42-2.01) |
| Not Black | Ref | Ref | Ref |

| Male sex | 0.43 | 0.058 | (0.18-1.03) |
|-------------------------|------|-------|-------------|
| CD4% | 1.0 | 0.882 | (0.97-1.03) |
| CD8% | 0.97 | 0.140 | (0.93-1.01) |
| CD8CD38% | 1.0 | 0.992 | (0.97-1.03) |
| CD8DR% | 1.03 | 0.022 | (1.0-1.05) |
| Viral Load | 1.0 | 0.159 | (1.0-1.0) |
| GFR | 0.99 | 0.013 | (0.98-1.0) |
| Days Tenofovir Exposure | 1.0 | 0.111 | (1.0-1.0) |

Conclusion:

Activation of CD8DR+ T cells associated with increased albuminuria in young HIV+ patients.

WSPID19-0265 E-Poster Presentations E-Poster discussion - Stream 1B: HIV Infections

PERINATAL RISK FACTORS ASSOCIATED TO HIV MOTHER-TO-CHILD TRANSMISSION IN SOUTH BRAZIL

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Background:

Mother-to-child transmission (MTCT) is the main cause of HIV pediatric infections and is responsible for 9% of all newly acquired infections. The goal of the Brazilian government is to reduce this vertical transmission to less than 2%.

Aims:

To evaluate the HIV MTCT rate after the introduction of zidovudine and nevirapine prophylaxis regimen for neonates and to identify transmission associated factors.

Methods:

Retrospective cohort study with HIV exposed newborns held at a public hospital located in South of Brazil, from February/2013 to December/2016. The comparison of variables between the newborn groups (infected or not infected by HIV) was calculated trough the T Test or Fischer's Exact Test. The predictive variables were included in Poisson Regression with Robust Variance.

Results:

321 newborns were exposed to HIV. The MTCT rate was 2.18% (7/321;IC95%:0.58-3.78%) and four newborns became infected through intrauterine exposure. The risk factors for MTCT were: absence of prenatal care (RR=9,4;IC95%:2,0-44,3); peripartum diagnosis of maternal HIV infection (RR=16.3;IC95%:3.6–73.0); gestational syphilis (RR=9.3;IC95%:2.1–40.3); maternal viral load greater than 1.000copies/mL at the third trimester or during delivery (RR=9.5;IC95%:1.7–50.5) and inadequate or absent antiretroviral therapy during pregnancy (RR=8.2;IC95%:1.6–41.4). In the multivariate analysis, all the previous shown risk factors were also considered independent risk factors to a greater MTCT rate.

Conclusion:

The HIV MTCT rate shown in this study is higher than recommended in Brazil even after the introduction of the two-drug prophylaxis for neonates and four newborns became infected through intrauterine exposure. The risk factors associated with HIV MTCT are all related to prenatal care.

WSPID19-0431 E-Poster Presentations E-Poster discussion - Stream 1B: HIV Infections

PROGRAMMATIC CONSIDERATIONS FOR OPTIMUM PEDIATRIC HIV CARE IN NIGERIA

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Background:

Despite several interventions, Nigeria still accounts for a large population of HIV-positive children. In order to ensure optimal inclusion of this vulnerable population in the HIV response, pediatric HIV care programmes must be prioritized.

Aims:

The study assessed pediatric clinical data from HIV treatment facilities in Nigeria, to identify gaps in pediatric HIV care, and inform programmatic interventions.

Methods:

The cross-sectional study was done at 63 randomly-selected HIV treatment facilities in Nigeria, between July 2018 and December 2018. The World Health Organization (WHO) Cascade Data Use Manual was adapted to identify the gaps in pediatric HIV care at the facilities. Data on Anti-Retroviral Therapy (ART), and laboratory monitoring of ART, were obtained from patients' ART care cards. All data were analysed by descriptive statistics.

Results:

Of the total 1,062 patients assessed, (80.1%) were 7-14 years of age while 19.9% were between 18 months and 6 years of age. This was attributed to targeted interventions to prevent vertical transmission of HIV. Percentages of patients on Zidovudine-based, Abacavir-based and Tenofovir-based regimen were 88.4%, 6.7%, and 4.9% respectively, according to age-bands and body weights. Patients (98.2%) had free access to prophylaxis and treatment of opportunistic infections. Elevated levels of aspartate aminotransferase were observed in 50.0% of tests conducted. The overall HIV suppression rate was 55.0%.

Conclusion:

Vertical transmission of HIV is declining due to interventions. However, there is an urgent need to intensify on-going efforts to provide optimal ART regimens with high HIV suppression rates and minimum tissue damages for children living with HIV in Nigeria.

WSPID19-0530 E-Poster Presentations E-Poster discussion - Stream 1B: HIV Infections

ADHERENCE TO ANTIRETROVIRAL MEDICATION AND ASSOCIATED FACTORS AMONG HIV POSITIVE ADOLESCENTS ATTENDING THE KORLE BU TEACHING HOSPITAL J.A. Dame¹

¹Korle Bu Teaching Hospital, Child Health, Accra, Ghana

Background:

Treatment adherence, remains a challenge in the care of children and adolescents living with HIV. Poor adherence increases the risk of drug-resistance and limits treatment efficacy. In Ghana, no separate guidelines exist for adolescent HIV care with no formal transitioning protocol. As a result, non-adherence may increase after transitioning to the adult care. It is important to determine adherence among adolescents who have assumed responsibility for medication administration, and factors associated with adherence for good clinical outcomes.

Aims:

To evaluate antiretroviral medication adherence and its associated factors among HIV positive adolescents attending the Korle Bu Teaching Hospital, Accra, Ghana

Methods:

Cross sectional study amongst adolescents on antiretroviral therapy for at least 6 months. The three-day self-report validated score used was used to measure adherence and univariate analysis was used to describe the data. A multivariate regression analysis was used to determine the independent predictors of adherence. A p value < 0.05 was considered significant.

Results:

The adherence rate was 50.0%. Only 52(24.8%) of the study participants took their medication at the same time daily, and this was significantly associated with adherence, aOR 1.82 (CI 95% 2.88-14.29); p<0.0001. Those who had other people in the home taking antiretrovirals were 2.5 times more likely to adhere to their medication; aOR 2.47 (CI 95% 1.30-4.69); p=0.04.

Conclusion:

There was a low rate of adherence to antiretroviral therapy and the education on adherence must be intensified among adolescents. Taking medication at the same time every day, and the use of treatment partners could assist adolescents with adherence issues

WSPID19-0129 E-Poster Presentations E-Poster discussion - Stream 1B: Meningitis and Gastrointestinal Tract Infections

A 4 YEAR OLD CHILD WITH ATYPICAL PNEUMONIA AND MENINGITIS

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Background:

Mycoplasma infections are less common in children younger than 5 years and are the leading cause of pneumonia in older children and adults.

Aims:

Consider mycoplasma in younger children,

Methods:

A previous healthy 4 year old girl, resident of Chandigarh, presented with the history of fever 5 days duration associated with cough with fast breathing from 1 day. She received Oral Amoxicillin- Clav prior to coming.On examination, HR-100/min, RR-44/min, afebrile, BP-90/60 mm Hg. On examination - Respiratory distress present, Air entry decreased on Right lower zone with normal air entry on left side and no adventitious sounds Systemic examination was within normal limits.Hemoglobin - 10gm/dl Total leucocytes count - 7800/mm3 with N - 50, L - 40, E - 3, M - 5. Platelet count - 440000/mm3. Liver function test, Renal function test were normal. X-ray chest showed Right lower and middle lobe consolidation.Diagnosis of community acquired pneumonia was made and she was started on injectable ceftriaxone (blood culture sensitivity pending)along with the supportive measures.Her fever persisted and she started having headache on day 4 of admission which increased in severity and was associated with vomiting and she had positive meningeal signs.Lumbar puncture showed 50 cells with 90%lymphocytes and 10 % neutrophils.Mycoplasma was suspected and she was started on Injectable Azithromycin which was switched to oral after 3 days and given for 7 days.

Results:

Mycoplasma was confirmed by serology positive IgM. Child responded well and was discharged on oral antibiotics.

Conclusion:

Mycoplasma infections should be considered in children younger than 5 years.

WSPID19-0198 E-Poster Presentations E-Poster discussion - Stream 1B: Meningitis and Gastrointestinal Tract Infections

ENTERIC FEVER IN CHILDREN LESS THAN 2 YEARS: A CLINICAL PROFILE & DRUG SENSITIVITY ANALYSIS AT A PEDIATRIC TERTIARY CARE HOSPITAL

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Background:

Enteric fever in infants and young children presents with non –specific symptoms albeit with heightened severity and a longer recovery period. Emerging data shows increasing incidence and prevalence. Here, we describe clinical profile of young children (less than 2 years) with blood culture proven enteric fever and antimicrobial susceptibility patterns of isolated strains.

Aims:

To estimate the prevalence, analyze the clinical profile and pattern of drug sensitivity in children less than 2 years with blood culture proven enteric fever.

Methods:

Case records of all children below 2 years of age with a positive blood culture were analyzed over a period of 2 years (Jan 2017-Jan 2019) for clinical features, clinical isolate causing enteric fever and drug sensitivity pattern

Results:

Of the positive clinical isolates, 40 children (n-200, 20%) were below 2 years of age of which, 34 children (85%) were between 1-2 years of age. Fever of 7-10 days duration was the most common presenting profile (n- 25, 62.5%). S. *typhi* was the most common isolate (n-32, 80%). Widal test was positive only in 7.5% (n-3). 77.5% isolates were Nalidixic acid resistant. No MDR strains were isolated.

Conclusion:

Typhoid is not uncommon and needs a high index of suspicion in infants and young children especially in children presenting with prolonged fever. Retained sensitivity to 1st line antimicrobials is promising. Prevention by newly licensed conjugate vaccine could address this challenge in near future.

WSPID19-0403 E-Poster Presentations E-Poster discussion - Stream 1B: Meningitis and Gastrointestinal Tract Infections

DETECTION OF HELICOBACTER PYLORI IN PATIENTS WITH ACID PEPTIC DISORDERS AT B.P KOIRALA INSTITUTE OF HEALTH SCIENCES, DHARAN, NEPAL

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Background:

Helicobacter pylori (*H.pylori*), a gram negative bacterium plays a crucial role in causing gastroduodenal diseases and gastric cancer. *H. pylori* is detected by both conventional and molecular methods each with its own advantage. Combination of both the methods seems to be promising.

Aims:

To detect *H. pylori* in upper GI endoscopic biopsy specimen by RUT(Rapid Urease Test), Microscopy and 23S rRNA PCR(Polymerase chain reaction).

Methods:

The study was conducted from January 2017 to December 2017 in 52 patients with Acid Peptic Disorders (APD). Antral biopsies of approximately 4mm were cut and subjected to RUT, Microscopy and PCR. Performance of RUT was compared with the results of PCR.

Results:

Out of 52 clinically diagnosed cases of APD, 26(50%) patients tested positive for *H. pylori* infection. Positivity by RUT, Microscopy and PCR detected *H. pylori* by 40.38%, 5.76% and 15.38% respectively. On comparing the performance of RUT and PCR the agreement was 55.7%(Kappa coefficient *p* value 0.55)





Conclusion:

There was an evidence of *H. pylori* infection in patients with APD. An agreement of 55.7% between performance of RUT and 23S rRNA PCR was seen. A large number of samples should be analyzed before concluding the appropriateness of the diagnostic tests. Combination of different methods should be carefully interpreted.
WSPID19-0034 E-Poster Presentations E-Poster discussion - Stream 2B: Diagnostic challenges and Antimicrobial Stewardship

INFECTIOUS INFLAMMATION AND ADJUNCTIVE CORTICOSTEROID THERAPY: CASE REPORT AND HYPOTHESIS

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Background:

Many physicians hesitate to prescribe corticosteroids for active infections because of their known immunosuppressive effects and potential long-term complications.

Aims:

To define infectious inflammation as a harmful immune response arising from the anti-infectious process and propose the necessity of adjunctive corticosteroid therapy in infectious diseases.

Methods:

We describe a child with pneumococcal pneumonia who needed to receive both corticosteroids and antibiotics for treatment.

Results:

A 13-month-old girl was admitted to our department with fever and cough. Chest X-ray examination revealed complete haziness in the right lung with pleural effusion. Blood tests showed leukocytosis and C-reactive protein elevation. She was diagnosed with pneumonia and empiric antibiotics (cefotaxime 200 mg/kg/day) were administrated. The causative pathogen, *Streptococcus pneumoniae*, was isolated from the initial blood and pleural cultures. Follow-up cultures were sterilized with antibiotic treatment. However, despite the microbiological improvement, she exhibited persistent fever and tachypnea. Considering the possibility of acute respiratory distress syndrome (ARDS), adjunctive corticosteroid therapy (prednisolone 2 mg/kg for 3 days) was initiated. Her symptoms improved within 24 hours and she no longer had fever and dyspnea. She was discharged after 14 days of antibiotic treatment.

Conclusion:

(Hypothesis) Infectious inflammation arises from an untoward immune response against a microbial antigen, similar to the allergic or rheumatic inflammation from an innocuous antigen or self-antigen, respectively. As the causative antigen and harmful immune response are controlled in allergic or rheumatic disease, it may be necessary to control both the untoward immune response to the pathogen and the pathogen itself in infectious diseases.

WSPID19-0035 E-Poster Presentations E-Poster discussion - Stream 2B: Diagnostic challenges and Antimicrobial Stewardship

DIFFERENTIATING KAWASAKI DISEASE FROM URINARY TRACT INFECTION IN FEBRILE CHILDREN WITH PYURIA AND C-REACTIVE PROTEIN ELEVATION

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Background:

Kawasaki disease (KD) is sometimes confused with urinary tract infection (UTI) because both can present with pyuria and C-reactive protein (CRP) elevation.

Aims:

To investigate the clinical and laboratory findings that can differentiate KD from UTI in febrile children with pyuria and CRP elevation.

Methods:

Medical records were retrospectively reviewed for children with KD and those with UTI. The clinical and laboratory findings between the KD with pyuria group (n = 48) and the UTI group (n = 118) were compared.

Results:

The KD with pyuria group had older age (P<0.001) and longer duration of fever (P<0.001) than the UTI group. In blood tests, both groups showed increased CRP level, but the value of CRP was higher in the KD with pyuria group than in the UTI group (P<0.001). The KD with pyuria group also showed higher values for liver enzymes than the UTI group (P<0.001); >70.0% of children in the KD with pyuria group, but <20.0% of children in the UTI group possessed elevated liver enzymes (P<0.001). On urinalysis, 40.7% of the UTI group had a positive nitrite test, but 0.0% of the KD with pyuria group had a positive nitrite test (P<0.001).

Conclusion:

Elevated liver enzymes are more specific to KD than to UTI, whereas a positive nitrite test is more specific to UTI than to KD. Our findings can be used as diagnostic clues to differentiate KD from UTI in febrile children with pyuria and CRP elevation.

WSPID19-0099 E-Poster Presentations E-Poster discussion - Stream 2B: Diagnostic challenges and Antimicrobial Stewardship

USING A PERIOD INCIDENCE SURVEY TO COMPARE ANTIBIOTIC USE IN CHILDREN BETWEEN TWO HOSPITALS IN A COUNTRY WITH LOW ANTIMICROBIAL RESISTANCE

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Background:

Increasing antimicrobial resistance and inappropriate use of antibiotics are major global health challenges.

Aims:

The aim of our study was to describe and compare antibiotic use in relation to indications, doses, adherence rate to guidelines and rates of broad-spectrum antibiotics (BSA) in two different Norwegian pediatric departments with different academic cultures, and identify areas with room for improvement

Methods:

This is a prospective survey of antibiotic use in pediatric departments in a university hospital (UH) and a district hospital (DH) in Norway, 2017. The registration period was one year at the DH and four months at the UH. In total, 201 children at the DH and 137 children at the UH were treated with systemic antibiotics and included in the study.

Results:

In total, 744 prescriptions of antibiotics were given at the UH and 638 at the DH. Total adherence rate to guidelines was 75% at the UH and 69% at the DH (p=0.244). The rate of treatments involving BSA did not differ significantly between the hospitals (p=0.263). A larger proportion of the children at the DH were treated for respiratory tract infections (p<0.01) compared to the UH. Children at the UH were treated with higher doses of ampicillin and cefotaxime (p<0.05) compared to the DH.



Distribution of antibiotic doses

Conclusion:

Our results indicate that Norwegian pediatricians have a common understanding of main aspects in rational antibiotic use independently of working in a university or district hospital. Variations in treatment of respiratory tract infections and in doses of antibiotics should be further studied.

WSPID19-0239 E-Poster Presentations E-Poster discussion - Stream 2B: Diagnostic challenges and Antimicrobial Stewardship

THE EFFECT ANTIMICROBIAL RESISTANCE TO CHILD MORTALITY

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Background:

Infections contribute to early death in children. Nowadays, increasing number of microorganisms worldwide had developed antimicrobial resistance (AMR). AMR, to a certain degree, can be attributed to inappropriate & unnecessary use of antibiotics. The world is facing a crisis of global AMR. Very soon, antimicrobials will be ineffective to treat infections. Recently, the World Health Organization (WHO) had published Global Antimicrobial Resistance Surveillance System (GLASS) data of participating countries.

Aims:

To examine the association between AMR and global health indicators: infant mortality rate (IMR), neonatal mortality rate (NMR), pneumonia mortality rate (PMR), meningitis mortality rate (MMR), neonatal sepsis mortality rate (NSMR), and neonatal pneumonia mortality rate (NPMR).

Methods:

Published reports & data from WHO, World Bank & UNICEF websites were used to assess: 1) The association of percentages of third generation cephalosporin (3GC)- resistant *E. coli* & IMR, NMR, NMSR & NPMR: and 2) the association between the percentage of penicillin- resistant (PR)-*S. pneumoniae* & PMR, MMR. This was done via linear regression & adjustment of the income levels in the six models.

Results:

A 1% increase in the percentage of the in the percentage of 3GC-resistant *E. coli* corresponded to a 1 % increase [95% confidence interval (CI) 0.3-1.8%] in IMR & a 0.9% increase (0.08-1.7%) in NMR. Moreover, a 1% increase in the percentage of PR-*S. pneumoniae* is associated with a 0.3% increase (-0.03-0.5%) in PMR.

Conclusion:

Rising antimicrobial resistance contributes to an increase in child mortality; hence measures must be taken by the world community to use antibiotics judiciously

WSPID19-0461 E-Poster Presentations E-Poster discussion - Stream 2B: Diagnostic challenges and Antimicrobial Stewardship

IMPACT OF ANTIBIOTIC STEWARDSHIP PROGRAMS ON MEROPENEM CONSUMPTION AT A TERTIARY CARE CENTER, BANGKOK, THAILAND

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Background:

Meropenem is highly used in multidrug-resistant Gram-negative bacteria endemic areas. Antibiotic stewardship programs (ASP) is essential to promote the judicious use and improve antibiotic consumption.

Aims:

To study impact of ASP implementation on meropenem consumption at a tertiary care center, Bangkok, Thailand.

Methods:

Pediatric patients receiving meropenem underwent a prospective audit and feedback by a multidisciplinary ASP team. ASP round have been done twice a week to give feedback to primary physicians. Antibiotic consumption was determined and represented by day of therapy per 1,000 patients days (DOT/1,000 PD). DOT/1,000 PD were collected monthly and compared the slopes between pre- and post- ASP using segmented regression analysis. Appropriateness at 72 hours was evaluated based on local guideline and ASPs team consensus.

Results:

From January 2018 to April 2019, a total of 545 carbapenem prescriptions were reviews; from general ward 33%, PICU 28%, cardiology ward 22%, and oncology ward 17%. A total of 157 recommendations were made. These included de-escalation (61%), discontinuation (28%), dose optimization (5%), and others (6%). Overall, a median DOT of meropenem was 231 DOT/1,000 PD (IQR 210-282). A mean of monthly change of DOT/1,000 PD of meropenem in pre-ASP was -2 days (95%CI -6.5 to 2.6) in pre-ASP compared with -4 days (95%CI -12.7 to 4.6) in post-ASPs period. Among 244 prescriptions with positive microbiological results, 44(18%) prescriptions were discontinued before 72 hours, and 143 (59%) prescriptions were appropriate.

Conclusion:

Meropenem prescriptions tended to decrease after one-year ASP implementation but not significantly. Sustained ASP implementation with long-term monitoring and evaluation are needed.

WSPID19-0468 E-Poster Presentations E-Poster discussion - Stream 2B: Diagnostic challenges and Antimicrobial Stewardship

CHOOSE YOUR OWN ADVENTURE: ENGAGING GENERAL PAEDIATRICIANS TO DETERMINE THEIR PREFERRED INTERVENTION TO PROMOTE APPROPRIATE ANTIBIOTIC USE FOR COMMON INFECTIONS IN HOSPITALIZED CHILDREN

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Background:

Common childhood infections in hospitalized children are usually managed by general paediatricians. One of the commonest causes of inappropriate prescribing is excessive antibiotic durations. The best way to implement antimicrobial stewardship (AMS) interventions for this population is unknown.

Aims:

To determine whether engaging general paediatricians to choose their preferred AMS intervention results in decreased unnecessary duration of antibiotics for urinary tract infection (UTI) and lymphadenitis.

Methods:

General paediatricians at the Royal Children's Hospital Melbourne completed a survey on confidence in antibiotic durations. They received education using the 2016 ANZPID-ASAP Antibiotic Duration and IV-Oral Switch in Children guideline and were asked to choose their preferred AMS interventions. They chose lanyard guideline cards and fortnightly 5-minute direct feedback. UTI and lymphadenitis were targeted during education, but the lanyards included all infections. Data on IV duration were collected prior to introducing the intervention in March 2019, and then collected and fed back prospectively.

Results:

There were 36 survey responses. For UTI, the proportion that felt confident in IV duration was 80% and timing of IV-oral switch 75%. For lymphadenitis these were, respectively, 35%, and 25%. The table shows the duration of IV antibiotic prescribing pre- and post-intervention.

| Infection | Duration of IV antibiotics | | | |
|---------------------------------|----------------------------|---|--------------|---------|
| | Pre-intervention | Post-intervention | 95% CI | p value |
| UTI | annourses it | 1 and and a second s | 240244200000 | 100000 |
| Median (range), days | 2.5 (0-3) | 2 (0-7) | -1.35-1.78 | 0.78 |
| Proportion (%) within guideline | 64% | 69% | | |
| Lymphadenitis | | | | |
| Median (range), days | 3 (2-9) | 1.5 (0-5) | 0.03-4.6 | 0.047* |
| Proportion (%) within guideline | 25% | 53% | | |

Conclusion:

We present preliminary results from the first 3 months post-intervention. The intervention has had some success, but general paediatricians continue to prescribe IV antibiotics for UTI and lymphadenitis for longer than recommended. The intervention is ongoing and data to November 2019 will be presented, along with data on the bystander effect on other infections.

WSPID19-0537 E-Poster Presentations E-Poster discussion - Stream 2B: Diagnostic challenges and Antimicrobial Stewardship

IMPLICATION OF GUT MICROBIOME IN OBESITY, TYPE II DIABETES AND CARDIOVASCULAR DISEASES: SYSTEMATIC REVIEW AND QUANTITATIVE EVIDENCE SYNTHESIS

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Background:

Microbiomes reflect the community of several microorganisms involving symbiotic relationship with the host such as humans. The relevance of this colonization with the large varieties of these microbes signals host protective mechanism as well as digestive function, enhancing nutrients absorption, as observed in gastrointestinal tract or gut microbiomes. These microbiomes include bacteroidetes, firmicutes, actinobacteria, proteobacteria ruminococcus, bacteroide and prevotella with functional diversity.

Aims:

To examine the nexus between microbiome diversity and obesity, type II diabetes and CVDs.

Methods:

A systematic review and quasi Quantitative Evidence System (QES) was used to identify studies, extract data and generate the scientific statement. Relevant and search terms search engines namely MEDLINE/ PUBMED, EMBASE and the Cochrane Library were utilized for data assessment while random effect procedure was used for the summary effect.

Results:

Of the 11 studies synthesized, 9 implicated decreased microbiomes diversity in chronic disease, 81.8%. There was microbiome diversity with respect to environment namely diet, and type II diabetes, obesity and cardiovascular disease (CVDs) development. Bacteriodetes concentration was associated with type II diabetes, compared to low concentration, there was 10% increased risk of type II diabetes, risk ratio (RR)=1.10, 96%CI, 1.01-13.46. In addition there was an inverse correlation between microbiomes (firmicutes, actinobacteria, and proteobacteria) and clinical conditions namely obesity, type II diabetes and CVDs.

Conclusion:

Microbiomes diversity inversely correlates with chronic disease incidence and prevalence. These findings are suggestive of the need to enhance microbiomes diversity via cautious utilization of antibiotics in infectious disease management and to discourage the use of probiotics given individual guts heterogeneity

WSPID19-0111 E-Poster Presentations E-Poster discussion - Stream 2B: Infections in the Immunocompromised Host and Transplant Patient II

OUTCOMES OF BACILLE CALMETTE GUERIN(BCG) VACCINATION IN HIV -POSITIVE CHILDREN

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Background:

The question about BCG vaccination in HIV positive children is still open. On the one hand BCG is only one vaccine available nowadays in order to protect children under 5 year from TB generalized form. In the settings with TB high burden BCG vaccination is recommended to children at birth. On the other hand, BCG vaccination was contraindicated for HIV -positive children for a long time.

Aims:

To estimate BCG influence on TB developing, severity and outcomes in HIV positive children in our hospital.

Methods:

Retrospective collection data from medical records of HIV -positive patients 0-18 years old who are the first to start ART since June 2016 till June 2017 at the Center «Clinic for treatment children with HIV/AIDS» at the National Children's Specialized Hospital «OKHMATDYT», Kiev, Ukraine.

Results:

66 patients were identified, they were divided into Group1(G1) - BCG vaccinated (n= 30) and group2 (G2)-BCG- non- vaccinated (n=32). In 4 cases data about BCG vaccination was absent.TB cases were identified in G1 and G2 as 36 % and 37 %, respectively. Mortality level 3 % was the same in both group. The disseminative form in group 1 and 2 was 63% and 41%,

respectively. CD4 cells at the time of Tb diagnostic were: in G1-5% -218 cells/ml and in G2 - 16% -436 cells/ml

Conclusion:

TB incidence and mortality level in both group was similar. However, disseminative TB was more frequent in BCG vaccinated group. At the same time the averageCD4 cells rate was much lower in this group.

WSPID19-0274 E-Poster Presentations E-Poster discussion - Stream 2B: Infections in the Immunocompromised Host and Transplant Patient II

EMERGENCE OF ECHINOCANDIN RESITANCE CANDIDA AMONG PEDEATRIC CANCER PATIENTS, SINGLE CENTER EXPERIENCE

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Background:

Cancer patients are at risk for candidemia, echinocandin are widely used for prophylaxis in hematological cancer patients. increasing echinocandin resistanceCandida spp. represent an emerging threat.

Aims:

To identify echinocandincandida resistant strains and breakthrough candida among our pediatric cancer patients.

Methods:

Between 2014 - 2018, we retrospectively reviewed the medical records of patients with candidaemia in Children Cancer Hospital Egypt. Resistant candida species pattern and outcome are analyzed.

Results:

240 candida isolates detedted among pediatric cancer patients out of which 52 % are hematological malignancies. Non-albicans accounts for 70% of cases (C.Tropicalis 30%, C Parapsilosis 18 % and C. Krusei 5%). Resistance to various antifungals was seen in 72 isolates (30%). C. parapsilosis 14/43 (30%) was the most common resistant strain. Distribution of resistance is shown in Table 1.Echinocandin resistant candida strains seen in 11 cases/240(4%), 5 was C. Parapsilosis, 3 C. Albicans, 2 C .Tropicalis and 1 for C.Krusei.Breakthrough candidemia on echinocandin prophylaxis seen in 28 cases/ 240 (12%). 16 (57%) had C.parapsilosis with 4 patients had hepatosplenic candidiasis (HSC), 6 patients/ 28 (21%) with Breakthrough candidemia died from candida sepsis syndrome. The overall 30 -day mortality rate was 22 % (63/240 patients). Candida attributable cause of mortality 34 cases (14%). Echinocandin Resistant candida was a direct cause of mortality in 2 patients. Patients with septic shock and ICU admission and Central venous catheter candidemia was associated with high risk mortality.

Conclusion:

Echinocandin resistant Candida is a major threat in hematological pediatric cancer patient with high mortality rate. Antifungal stewardship is helpful.

WSPID19-0321 E-Poster Presentations E-Poster discussion - Stream 2B: Infections in the Immunocompromised Host and Transplant Patient II

PREVALENCE OF SERUM BACTERICIDAL INDICES AGAINST MENINGOCOCCAL SEROGROUP A, C, W AND Y IN SLE PATIENTS

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Background:

Patients with systemic lupus erythematosus (SLE) are at an increased risk of infection including *Neisseria meningitidis*, especially if they are taking immunosuppressive medication.

Aims:

The aim of this study was to investigate the prevalence of serum bactericidal antibodies against *Neisseria meningitidis* serogroups A, C, W and Y in adolescents and young adults with SLE in the Republic of Korea.

Methods:

In total, 41 patients aged 16-22 years from two hospitals were included in the study. Serum bactericidal assay with rabbit complement was used to measure serum bactericidal indices (SBI) for serogroups A, C, W and Y. Percentages of subjects with SBI \geq 8, geometric mean indices (GMIs) and associated 95% confidence intervals (CIs), were estimated.

Results:

The percentage of subjects with SBI \geq 8 were for serogroup A (17%), serogroup C (63%), serogroup W (56%) and serogroup Y (61%). GMIs and 95% CIs were 11(5,21) (serogroup A), 107 (46, 249) (serogroup C), 46 (23,91) (serogroup W) and 53 (27, 106) (serogroup Y). Figure shows the distribution of SBIs for four



Conclusion:

Most of patients with SLE do not have SBI against *N. meningitidis*. Inactivated vaccines are safe to administer to SLE patients on immunosuppression. To reduce the risk of infection in SLE patients, vaccination against *N. meningitidis* can be considered the most reliable option.

WSPID19-0180 E-Poster Presentations E-Poster discussion - Stream 2B: Respiratory Viral Infections

PREVALENCE AND SEASONALITY OF RESPIRATORY VIRUSES DETECTED FROM CHILDREN WITH INFLUENZA LIKE ILLNESS IN NEPAL

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Background:

Acute respiratory infections are one of the major public health problems among the children in Nepal.

Aims:

The aim of this study was to determine the prevalence and seasonality of influenza and other respiratory viruses infection in children with influenza like illness in Nepal.

Methods:

A descriptive cross sectional study was conducted at Central Diagnostic Laboratory and Research Center, Kathmandu, Nepal in 2016/17. A total of 882 nasopharyngeal swabs were collected from the children with influenza like illness according to WHO case definition. Total nucleic acid was extracted using Pure Link viral RNA/DNA mini kit (Invitrogen) and multiplex RT-PCR assays were performed.

Results:

Of the total 882 specimens; respiratory viruses were found in 556 (63.0%) specimens. Respiratory syncytial virus 130 (14.7%) was most frequently detected in children followed by rhinovirus 121 (13.7%), metapneumovirus 37 (4.2%) and enterovirus 36 (4.0%) respectively. The rate of respiratory syncytial virus co-infection 60 (15.7%) was high than rhinovirus 51 (13.4%), metapneumovirus 13 (3.4%) and enterovirus 12 (3.1%) infection in influenza positive cases. Children (<2 year) were more commonly co-infected with respiratory syncytial virus than influenza, rhinovirus and enterovirus. Prevalence of respiratory syncytial virus infection was found year-round with two peak in winter (Jan-Feb) and summer (July-Aug) season.

Conclusion:

We found that the prevalence of influenza and RSV were substantial causes of acute respiratory infection in children. Our findings provide insight into the vaccination plan and minimizing the use of antimicrobial agents in Nepal.

WSPID19-0237 E-Poster Presentations E-Poster discussion - Stream 2B: Respiratory Viral Infections

HUMAN METAPNEUMOVIRUS INFECTION IN PEDIATRIC INTENSIVE CARE UNIT (PICU) IN THE KOREA 2014-2018; A SINGLE CENTER STUDY

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Background:

Human metapneumovirus (hMPV) is a recently recognized pathogen and commonly causes respiratory tract infection in children. hMPV infections are known to be mild and usually self-limited. Data on hMPV infection and PICU hospitalization are limited.

Aims:

To analyze hMPV infection associated PICU admission in pediatric patients.

Methods:

Patients (18 years or younger) hospitalized to general ward or PICU from January 2014 to December 2018 were identified at a tertiary hospital in Seoul, Korea. Specimens were obtained from nasopharyngeal aspirate or bronchoalveolar lavage. hMPV was detected by multiplex RT-PCR. The only first episode was included. hMPV infection associated PICU admission was defined as respiratory deterioration in patients who had confirmed hMPV infection -7 days to + 2 days of PICU admission.

Results:

A total 252 children had hMPV infection and 14(5.6%) were identified as having hMPV infection associated PICU admission. The median age was 1.5 years(0.2-15.3 years) and 57.1% was female. The median hospital length of stay(LOS) was 22.9 days(5-63 days) and median ICU LOS was 9.5 days(2-41 days). Eleven patients(78.6%) had underlying diseases; cancers(3), neurologic diseases(3), bronchopulmonary dysplasia(1), heart disease(1), liver transplantation(1), cyclic vomiting syndrome(1), chronic kidney disease(1). Four(28.6%) patients were immunocompromised condition. About 50% of patients needed ventilator support. One cancer patient died within 30 days from first hMPV detection and a 30-day mortality rate was 7.1%.

Conclusion:

hMPV can cause severe infection and PICU admission in most patients with underlying conditions. Further study is needed for risk factors for PICU admission.

WSPID19-0415 E-Poster Presentations E-Poster discussion - Stream 2B: Respiratory Viral Infections

DISTRIBUTION OF SEASONAL INFLUENZA VIRUS AND TYPES OF INFLUENZA: 4 YEARS DATA FROM HACETTEPE, TURKEY

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Background:

Influenza infections have a seasonal distribution and characteristic time course. However, the severity of disease caused by various influenza virus types and the influencing factors that affect the extent of infections may be different. Moreover, the disease course actually may not be determined specifically in children because of lower seroprotection rates of children as compared with adults.

Aims:

Herein, the reporting of the results of demographic, clinic, and laboratory data of children with influenza from Turkey were aimed.

Methods:

We present here the results from 2013 to 2017. Nasopharingeal swab samples of the children with influenza were investigated via multiplex PCR. PCR positive samples were considered as influenza infection.

Results:

A total of 349 children were diagnosed with influenza. Most of the patients were males (54 %). The median age of the cases was 3 years (min-max, 0–17). Among children with influenza, 146 (41.8 %) were influenza A, 84 (24.1 %) were influenza B, and 119 (34.1 %) were mix infection with other respiratory viruses, including rhinovirus, coronavirus, bocavirus. Of the all diagnosed cases, 99 (28.4 %) of the patients were diagnosed in January, 92 (26.4 %) in December, 65 (18.6 %) in February and the others in November, March, and April.

Conclusion:

Successful vaccination policies for protection from influenza are dependent on accurate determination of the etiologic type of influenza as well as continue surveyans. The epidemiology

of the infection is dynamic and close monitoring of subtypes is comprehensively needed for a reasonable immunization program.

WSPID19-0433 E-Poster Presentations E-Poster discussion - Stream 2B: Respiratory Viral Infections

SEROTYPE IDENTIFICATION OF HUMAN ADENOVIRUSES ASSOCIATED WITH INFLUENZA-LIKE INFECTIONS IN PHILIPPINES FROM 2006 TO 2012 BY NEUTRALIZATION AND MOLECULAR TECHNIQUES

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Background:

Human adenoviruses (HAdV) are known to cause acute respiratory infections, conjunctivitis, and acute gastroenteritis. Mortality due to HAdV infection has been associated with the serotype, with HAdV serotypes 3, 7, and 1 as the most implicated. The National Influenza Surveillance of the Philippines has confirmed a total of 1,294 HAdV cases between 2006-2012, however the serotypes are unknown.

Aims:

This study aimed to identify the circulating HAdV species and serotypes isolated from patients with ILI seen in the Philippine National Influenza Center (PNIC) surveillance sites between January 2006 to December 2012.

Methods:

A total of 395 HAdV isolates were retrieved from the Institutional Biobank of the Research Institute for Tropical Medicine (RITM). Serotypes HAdV 1 to 7 were determined by neutralization test using type-specific antisera. Isolates that could no longer be recovered by standard culture methods were serotyped by polymerase chain reaction (PCR) and sequencing techniques.

Results:

Of the 395 isolates, A total of eight (8) serotypes were identified, with HAdV-2 (27.8%) and HAdV-3 (27.8%) as the most predominant. HAdV serotypes 1, 5, 7, 6, and 4 were identified in 16.2%, 11.1%, 9.6%, 4.8%, and 2.3% of the isolates, respectively. Only one was identified as HAdV-11.

Conclusion:

In conclusion, this study showed that HAdV-C2 and HAdV-B3 were the most predominant HAdV serotypes, while HAdV-C was the predominant species in the Philippines between January 2006 to December 2012. This study is the first to report the prevalent serotypes and species

and describe their epidemiologic and demographic characteristics in the Philippines on a nationwide scale.

WSPID19-0500 E-Poster Presentations E-Poster discussion - Stream 2B: Respiratory Viral Infections

IMPACT OF AGE ON THE OUTCOME OF CHILDREN HOSPITALIZED WITH INFLUENZA IN A REFERENCE HOSPITAL OF MEXICO.

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Background:

Estimate average of 374,000 hospitalization for influenza in worldwide in children under 1 year and 870,000 in children under 5 years.

Aims:

Estimate burden of influenza for age group in children hospitalized in the Mexico Children's Hospital Federico Gomez in five seasons of influenza (2013-2014 to 2017-2018).

Methods:

Retrospective cohort was performed, the cohort was assembled from the database of the molecular biology laboratory, where the subjects in whom influenza was detected were selected. We review files and we collect the following variables: age, sex, type of influenza, viral co-infection, comorbidities and outcomes (Mechanical ventilation and death). We allocates the subjects in 4 age groups (under 1 year, 1-4 years, 5-9 years and 10-18 years). Descriptive analyses were performed, calculated percentages and median with IQR 25th-75th. We compare groups with Xi2 test or Test of Wilcoxon for continuous variables.

Results:

312 files were disponible for review. Nosocomial influenza was 93 and were discarded and 219 files were analyzed. The group with more admissions were 1-4 years with 81 subjects, however groups 5-9 and 10-18 years had 61 and 51 admissions. Only 7% of admissions were without comorbidities, the comorbidities more frequent were cáncer and cardiac diseases . Influenza AH1N1 was less frequent in children 5-9 years, influenza b was more frequent in children 5-18 years. Mechanical ventilation per age group were under 1 year 30.77%, 1-4 29.63%, 5-9 3.28% and 10-18 15.69%. Mortality in a hospital were 19.23%, 17.28%, 3.28% and 13.73% respectively.

Conclusion:

Influenza causes a significant disease burden in schoolchildren and adolescents

WSPID19-0328 E-Poster Presentations E-Poster discussion - Stream 2B: Antimicrobial Agents and Resistance I

WHOLE GENOME SEQUENCING OF EXTENDED SPECTRUM BETA LACTAMASE ENTEROBACTER CLOACAE FROM BACTEREMIC CHILDREN

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Background:

Extended spectrum beta lactamase (ESBL) have become an important challenge in healthcare settings, complicated by the emergence of strains resistant to carbapenems.

Aims:

We report findings from whole genome sequencing of *Enterobacter* cloacae isolated from bloodstream infections of children in health facilities in central and northwestern Nigeria.

Methods:

Twenty-five ESBL *Enterobacter cloacae* were obtained over the period 2008-2016. All carbapenem resistant isolates (six) had their DNA sequenced using Illumina NextSeq500. Reads were assembled using the Qiagen CLC Genomics Workbench and assembled contigs annotated using Rapid Annotation Subsystem Technology. Antibiotic resistance genes, sequence types and plasmids replicons were identified with ResFinder, MLST pipeline and PlasmidFinder respectively.

Results:

Five (83.3%) of the six *Enterobacter cloacae* isolates harboured β -lactamase genes, *bla*CTX-M-15, *bla*TEM-1b, *bla*OXA-1, and *bla*SHV-12, concomitantly with other resistance genes acc(6')-lb-cr, aadAl6, oqxA, oqxB, and fosA-like that confer resistance to aminoglycosides, fluoroquinolones and fosfomycin respectively. The AmpC genes, ACT-7 and MIR6 were

detected in two and one isolates respectively. The isolates were classified into 7 plasmid replicons, ColRNAI was predominant (n=6), followed by IncFIB(K), IncF(II) and TrfA (n=4) each. The ST66 clone associated with carriage of CTX-M 15 β -lactamase, and 2 other STs 836 and 466 were detected. None of the six isolates harbored carbapenem-resistance genes. Efflux pumps; marA, H-NS and emrB were present in all isolates.

Conclusion:

This reports the production of AmpC with efflux pumps which can serve as an alternative mechanism for carbapenem resistance. Whole Genome Sequencing can help complement conventional laboratory methods for more effective local surveillance of antibiotic resistance patterns.

WSPID19-0330 E-Poster Presentations E-Poster discussion - Stream 2B: Antimicrobial Agents and Resistance I

ANTIMICROBIAL SUSCEPTIBILITY PATTERN AND DISTRIBUTION OF CARBAPENEM RESISTANT ACINETOBACTER STRAINS IN PATIENTS ATTENDING HOSPITALS IN ABUJA, NIGERIA

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Background:

Multidrug resistant *Acinetobacter* sp. are emerging as an important cause of nosocomial infections.

Aims:

This study determined the antimicrobial resistance patterns and carbapenem-resistance genes among *Acinetobacter* species obtained from children and women admitted to hospitals in Abuja, Nigeria.

Methods:

Acinetobacter isolates were obtained from blood samples collected from children and swabs collected from postpartum women (vaginal) and their newborns (throat) from November 2008 to August 2017. Antimicrobial pattern was determined using disk diffusion method following CLSI guidelines. Genomic DNA was extracted using Maxwell 16 (Promega, USA) and resistance genes identified using real-time PCR on an AriaMx machine (Agilent Technology) with specific primers and probes.

Results:

Of 105 isolates, 55(52.4%) were from blood, 37(35.2%) maternal and 13(12.3%) infant swabs. Overall, the resistance to antibiotics tested was: Ceftriaxone (87.2%, 92.0%)(p=0.43) and Cefotaxime (85.4%, 100%)(p=0.01) while susceptibility to colistin (94.5%, 98.0%)(p=0.35), Meropenem (87.3%, 94.0%)(p=0.24) and Imipenen (80.0%, 92.0%)(p=0.08) for invasive and colonized isolates respectively. Carbapenemase producers were detected in 12/105(11.4%) isolates. Predominant resistance genes identified were OXA51 (76.4%, 76.0%)(p=0.96), OXA58 (11%, 4.0%)(p=0.18) and NDM (3.6%, 8.0%)(p=0.33) for invasive and colonized isolates respectively. The OXA23 gene was detected only in colonized isolates, 4/50(8.0%). For all 105 isolates, co-existence of two or more resistance genes was observed in 8(7.6%) *bla*OXA-51/*bla*NDM, 3(2.8%) *bla*OXA-23-51/*bla*NDM and 1(0.9%) *bla*OXA-51-58/*bla*NDM.

Conclusion:

CONCLUSION The prevalence of carbapenem-resistance in invasive and colonizing *Acinetobacter* isolates in children and women in Nigeria is of concern. Antimicrobial surveillance is needed to determine any changes in local resistance patterns and guide effective treatment policies.

WSPID19-0475 E-Poster Presentations E-Poster discussion - Stream 2B: Antimicrobial Agents and Resistance I

A RETROSPECTIVE STUDY ON THE OUTCOME OF CHILDREN WITH EXTENSIVELY DRUG-RESISTANT GRAM-NEGATIVE INFECTION TREATED WITH COLISTIN VS OTHER ANTIMICROBIALS

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Background:

The increasing trend of extensively drug-resistant (XDR) Gram-negative infections led to the reconsideration of colistin as a valuable therapeutic option.

Aims:

To describe the clinical profile and treatment response of children with XDR Gram-negative infections treated with colistin vs. other antimicrobial agents.

Methods:

This retrospective descriptive study involved patients treated for XDR Gram-negative infections from January 2014 to June 2017 in a tertiary hospital in Metro Manila.Descriptive statistics of count, percentage, mean, median and interquartile percentile (IQR) were used to summarize the overall general and clinical characteristics of the subjects. Fisher-exact test and Mann Whitney U test were used to assess statistical differences between the non-colistin and colistin groups.

Results:

Majority of patients with XDR Gram-negative infection have current or prior antibiotic exposure. Receipt of TPN (p=0.035), hospital stay prior to XDR Gram-negative infection (p=0.001) and total hospital stay (p < 0.001) were higher among the colistin group. Treatment success was significantly higher in the colistin group at 70.3% vs 46.5% in the non-colistin group (p=0.014). There was no difference in the treatment duration of both groups. Clinical response was longer in the colistin group with a mean of 6.27 (+3.57) days vs 4.36 (+1.77) days in the non-colistin group (p=0.008). Fungal infection during the course of treatment was higher in the colistin group (p=0.001).

Conclusion:

Based on our institutional experience, colistin is considered effective and safe in treating XDR Gram-negative infections.

WSPID19-0493 E-Poster Presentations E-Poster discussion - Stream 2B: Antimicrobial Agents and Resistance I

RISK FACTORS FOR CARBAPENEM RESISTANT GRAM NEGATIVE NON-FERMENTATIVE BACILLI BLOODSTREAM INFECTIONS IN CHILDREN

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Background:

Carbapenem-resistant Non-fermentative Gram-negative bacilli (NFGB) can cause lifethreatening infections in hospitalized children.

Aims:

Therefore, we aimed to identify the risk factors for acquiring bloodstream infections (BSIs) due to a carbapenem-resistant NFGB and to compare with carbapenem-sensitive NFGB infections.

Methods:

A retrospective study was performed between January 2014-December 2017, in Ege University Children's Hospital, Turkey. NFGB BSIs were evaluated and patients with *Stenotrophomonas maltophilia* infection were excluded from the study due to intrinsic resistant to carbapenems. Species identification were performed using the automated systems MALDI TOFF MS/VITEK 2 (Biomerieux, France). VITEK 2 (Biomerieux, France) automated microdilution method was used in sensitivity tests according to EUCAST recommendations.

Results:

A total of 86 episodes of 78 patients were evaluated. The mean age of the patients was 4.68 and 52.3% were male. NFGB infections were common in intensive care unit, hematology-oncology and gastroenterology service. The most common diagnosis were solid-hematological malignancy, solid organ/bone marrow transplantation and small bowel insufficiency. The most common isolated bacteria was *Pseudomonas aeruginosa* (50%) and *Acinetobacter baumannii* (40.7%). The rate of carbapenem-resistant NFGB was 33.7%. The length of hospital stay and attributable mortality were statistically different in patients with carbapenem resistance. Use of mechanical ventilation, central venous catheter, nasogastric tube, foley catheter and severe neutropenia were considered as risk factors for carbapenem resistant NFGB infections.
| | Carbepenem Resistant (n:29) | Carbepenem Sensitive (n:57) | P Value | ODS Ratio (%95 Cl) |
|--|-----------------------------------|-----------------------------------|------------|----------------------|
| Age | 2.41 (7.94) | 2.72 (6.89) | 0.698 | |
| Days of hospitalization before onset of NFGB infection | 45 (75) | 9 (29) | <0.001 | |
| Days of hospitalization after onset of NFGB infection | 6 (39.5) | 16 (36) | 0.631 | |
| Negative Culture Duration | 3 (3) | 3 (3.75) | 0.509 | |
| Attributable mortality | 10 (%34.5) | 8 (%14) | 0.028 | 3.224 (1.106-9.398) |
| One Year Mortality | 16 (%64) | 14 (%31.8) | 0.010 | 3.810 (1.354-10.715) |
| Leukocyte /mm ³ | 9550 (15506) | 8330 (13480) | 0.308 | |
| Absolute Neutrophil Count/mm ³ | 6095 (9096) | 3720 (10752) | 0.368 | |
| Hemoglobin (g/dL) | 9.2 (1.4) | 9.2 (2.1) | 0.208 | |
| Platelet /mm ³ | 168000 (201250) | 167000 (255000) | 0.296 | |
| CRP (mg/dL) | 8.75 (8.1) | 2.0 (9.0) | 0.058 | |

 Table 1: Carbapenem resistant and sensitive patient characteristics in Non-fermentative Gramnegative bacilli infections

Table 2: Risk factors for carbapenem resistant Non-fermentative Gram-negative bacilli infections

| | Carbepenem Resistant (n:29) | Carbepenem Sensitive (n:57) | P Value | ODS Ratio (%95 CI) |
|--|-----------------------------------|-----------------------------------|---------|------------------------|
| Neutropenia (absolute neutrophil count <1500 /mm³) | 12 (%41.4) | 17 (%29.8) | 0.284 | |
| Moderate Neutropenia (absolute neutrophil count <1000 /mm³) | 10 (%34.5) | 11 (%19.3) | 0.121 | |
| Severe Neutropenia (absolute neutrophil count <500/mm ³) | 10 (%34.5) | 9 (%13.8) | 0.048 | 2.807 (0.987-7.986) |
| Mechanical ventilation | 18 (%62.1) | 12 (%21.1) | <0.001 | 6.136 (2.294-16.415) |
| Tracheostomy | 5 (%8.8) | 5 (%17.2) | 0.247 | |
| Nazogastric tube | 22 (%75.9) | 26 (%45.6) | 0.008 | 3.747 (1.382-10.161) |
| Foley catheter | 19 (%65.5) | 19 (%33.3) | 0.004 | 3.800 (1.480-9.759) |
| Central venous catheter | 28 (%40) | 42 (%60) | 0.010 | 10.000 (1.249-80.8041) |
| Total Parenteral Nutrition | 12 (%41.4) | 20 (36.4) | 0.653 | |
| Use of steroids | 11 (%37.9) | 17 (%29.8) | 0.448 | |
| Receiving chemotherapy | 12 (%41.4) | 21 (%36.8) | 0.683 | |
| Receiving immunosupresive treatment | 12 (%41.4) | 25 (%43.9) | 0.826 | |

Conclusion:

Prolonged hospitalization was an important risk factors for acquiring carbapenem-resistant NFGB infections. Attributable mortality was higher in patients with carbapenem resistant NFGBs. Clinicians should avoid unnecessary prolonged hospitalization to prevent from high mortality attributed NFGB infections.

WSPID19-0179 E-Poster Presentations E-Poster discussion - Stream 3B: Bacterial Infections II

COMPLICATIONS OF TOTALLY IMPLANTABLE VENOUS ACCESS DEVICES (PORTS) IN CHILDREN IN A TERTIARY CARE HOSPITAL

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Background:

Central venous port accesses facilitate the administration of antibiotics, blood products, fluids, parenteral nutritions, cytotoxic drugs and the collection of blood samples in children.

Aims:

We aimed to analyse the complications in children with port.

Methods:

This retrospective cohort study was performed at Hacettepe University Children's Hospital. Data of 100 patients with port 2014 to 2015 were evaluated and the demographics, clinics and incidence of port-related complications were recorded.

Results:

We analysed patients in two groups as infection group (42 patients) and non-infected group (58 patients) at first. The incidence of infection was higher in the patients with hematologic malignancy (p=0,001) than non-infected group. The odds ratio of infection in patients with hematologic malignancy were 5,97 (95%CI;2,2-15,5). The median duration of port in infection group was lower (155 days, 95%CI;13-296) (p=0,001) as compared to non-infected cases. In the infection group 59.5% of ports were removed due to port-associated infection. Overall, 25 (59.5%) of 100 ports were removed for symptoms of infection with an incidence rate of 0,28 events/1000 catheter-days. Additionally, we compared patients in infection group as bacteremia (n=23) and port-related infection (n=19). White blood cell and absolute neutrophil count were lower in port-related infection group (p= 0,004, p=0,01). There were no statistically significant difference in terms of risk factors such as mechanic ventilator, transfussion, chemotherapy, total parenteral nutrition and previous antibiotic treatment and localization of port between the groups.

Conclusion:

The underlying hematologic malignancy was independent risk factor for infection of port. Furthermore, neutropenia may be a significant factor for port-related infection.

WSPID19-0331 E-Poster Presentations E-Poster discussion - Stream 3B: Bacterial Infections II

TYGECYCLINE THERAPY FOR CRITICALLY ILL CHILDREN WITH ACINETOBACTER BAUMANII MULTIDRUG RESISTANT INFECTIONS

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Background:

Multidrug resistant Acinetobacter baumanii infections in critically ill children represent a real challenge. Tigecycline is an extended spectrum-antimicrobial agent that has limited approbation field in pediatric age, and available data about its safety and efficacy profile is lacking. However, it is a considerable option in life threatening infections in children, especially, when there is no available alternative antibacterial drug.

Aims:

To evaluate efficacy of tigecycline use in critically ill pediatric patients with Acinetobacter baumanii infection

Methods:

We report a retrospective study reviewing all critically ill pediatric patients, admitted in pediatric ICU, treated with tygecycine for nosomial infections caused by Acinetobacter baumanii multidrug resistant, in the period between January 2018 and April 2019.

Results:

10 patients were enrolled. The median age was 5,5 years (4 months to 14 years). The median ICU stay was 85 days (18- 403 days). Acinetobacter baumanii infection was diagnosed after a mean of 45 days of hospitalisation. The infection site was pulmonary. The Acinetobacter baumanii was multi drug resistant. It was tested intermediate to Tigecyclin in 20 % of cases. Tygecycline was prescribed, in combination with other antibiotics, at a maintaining dose of 1,2 mg/Kg/dose every 12 hours. Loading dose was not administrated. The median duration of treatment was 13,5 days (8- 19days). The mortality rate was 40%. Tygecycline was efficient in 60 % of cases who were discharged. Pulmonary samples were sterilized in 70% of cases.

Conclusion:

Tigecycline therapy was successful in 70 % of cases. It should be considered in critically ill children with Acinetobacetr baumanii nosocomial infections

WSPID19-0108 E-Poster Presentations E-Poster discussion - Stream 3B: Perinatal and Congenital Infections

A SERVICE EVALUATION OF AUDIO-VESTIBULAR OUTCOMES IN 11 PATIENTS WITH CONGENITAL CMV AT A SINGLE UK CENTRE OVER 12 YEARS

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Background:

Congenital cytomegalovirus (cCMV) is the leading non-genetic cause of sensorineural loss in children. Studies suggest ganciclovir and valganciclovir are effective treatments that help hearing and neurodevelopmental outcome at age 2, however long term data on treatment is required .

Aims:

Describe audio-vestibular outcomes in a cohort of children with cCMV at a single UK centre.

Methods:

Retrospective case note review.

Results:

Eleven patients identified between 2004- 2019,3 male and 8 female, current median age 5 years. 10/11 patients were treated with ganciclovir/valganciclovir. 9/11 had cranial USS or MRI in the neonatal period, 6/9 of these were abnormal. 8/11 patients had confirmed sensorineural hearing loss with all having progressive hearing dysfunction over time. 5/11 had normal neonatal hearing. Two treated patients had confirmed hearing loss after the neonatal period at 5 and 6 years old and one untreated 18 month old is currently under investigation. Hearing loss varied in severity from mild to profound; of those with hearing loss it was found to be bilateral in 66% and unilateral in 33%. 2/11 reported balance issues with one child formally tested who had vestibular dysfunction with absent calorics and cVEMPs bilaterally.

Conclusion:

Despite treatment with anti-viral medication, hearing loss remained prevalent in this cohort. Two children were diagnosed with hearing loss, despite treatment, when 5 years or older. It is therefore essential that all children with cCMV have enhanced hearing follow up throughout childhood.

WSPID19-0137 E-Poster Presentations E-Poster discussion - Stream 3B: Perinatal and Congenital Infections

PERINATAL MEASLES-CASE REPORT

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Background:

Immunization against measles is available since 1963 and it's been the main weapon that actually reduced the prevalence of the disease worldwide. As a result, in settings with inadequate measles vaccination coverage, measles virus infection has shifted to older ages and measles outbreaks are increasingly affecting adults, including women of childbearing age. Measles outbreak in Greece (European outbreak) during 2017 resulted in pregnant women also infected by measles virus.

Aims:

We present a full-term male neonate, that showed in our department during the 8th day of life febrile with inadequate feeding. He was born through cesarean section, with birth weight of 2.980gr. The mother, of Roma origin and unknown vaccination status, had a flu-like syndrome 2 days before delivery, but no exanthem appeared until her release from the hospital.

Methods:

Laboratory exams and cultures were received, intravenous Ampicilline-Amikacin was induced and he was immediately transferred to a Neonatal Unit.

Results:

The 14th day of life maculopapular lesions showed on the neonate's face with possible koplik spots on the oral bucosa. Measles virus RNA was detected through RT-PCR in saliva, so he was immediately placed in isolated area. He became afebrile within 48hours (16th day) and was released on the 28th day of life.

Conclusion:

Perhaps, it would be advisable during outbreak periods, as in Europe in 2017, measles to be considered among congenital infections and so IgG against measles to be part of the prenatal screening. It is also crucial to avoid future outbreaks by following a strict policy to keep adequate vaccination coverage.

WSPID19-0151 E-Poster Presentations E-Poster discussion - Stream 3B: Perinatal and Congenital Infections

ROLE OF NEWER MARKERS, INTERLEUKIN-1B AND 6 IN CEREBROSPINAL FLUID , IN DIAGNOSIS OF MENINGITIS- AN OBSERVATIONAL STUDY AT TERITIARY CARE HOSPITAL IN SOUTH INDIA

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Background:

Neonatal sepsis/meningitis, third leading cause mortality and is major public health problem, in developing countries. Although recent advances have improved neonatal care, challenges remain in the diagnosis which is additionally complicated by the frequent presence of noninfectious conditions, dubious and delayed rise of conventional biochemical parameters ,by the absence of optimal diagnostic tests. Hence clinicians are compelled to empirically administer antibiotics leading to adverse outcomes, increase antimicrobial resistance rates

Aims:

To analyze the usefulness of determining the cerebrospinal fluid (CSF) levels of interleukin- 1β (IL- 1β) and interleukin-6(IL-6) for early diagnosis ,evaluation of prognosis of neonatal meningitis

Methods:

Of 901 babies admitted in year 2017, 553 (61.5%) had risk factors. Sepsis screen was positive in 223(24.8%) .Of them 121(13.4%) were biochemically/cytologically/culture proven meningitis. Interleukins (Enzyme-linked immunosorbent assay) were significantly(140pg%) raised in all ofthese and in 34(33%) of screen positive and no meningitis cases. Some(23%) of later were subsequently positive for meningitis

Results:

IL-1 β and IL-6 levels in CSF were 73.3% and IL-6 96.6% respectively in neonates with meningitis which was significantly higher (p-0.02)(p-0.04) as compared to screen positive but no meningitis(IL-1 β ,IL-6 levels; 51.3% and IL-6 71.1% respectively). CSF levels of cytokines also increased in just screen positives ,11% of which later diagnosed as meningitis.(ROC analyses; area under the concentration-time curve (AUC) 0.91; 0.9103 respectively) for IL6.ROC analyses; (AUC) 0.82; 0.850 respectively) for IL1 β

Conclusion:

IL-6 was the best indicator of meningeal inflammation (mainly gram-ve sepsis). Detection of IL-1 β and IL-6 in the CSF is of great value in early diagnosis &fecilitate decision-making regarding treatment for culture negative meningitis.

WSPID19-0169 E-Poster Presentations E-Poster discussion - Stream 3B: Perinatal and Congenital Infections

INFECTIOUS FACTOR IN THE SYSTEM-MOTHER, FETUS, NEWBORN

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Background:

Introduction Intrauterine infection (IUI) are infectious processes caused by pathogens that have infected child from mother to childbirth or at birth.

Aims:

To investigate the placenta biopsy (gemohorial type) in TORCH infection positive women in labor

Methods:

Materials The anamnestic, clinical data and the course of the IUI in the newborns (n = 40) and a histological study of the placenta biopsy (gemohorial type) in TORCH infection positive women in labor (with subsequent staining of material by Papenheim) were evaluated. Micros Austria 100x / 1.25OI was used for microscopic examination.

Results:

Results

Despite the fact that the fetus never directly contacts the tissues of the mother, such contact exists between the placental maternal tissues and the placental tissues of the fetus According to our morphometric data, epithelial cells of the placenta with a pronounced polymorphism, structure disorder and degenerative changes were identified. The absence of cytoplasm, the presence of nucleolus, and mitotic figures were. Morphological manifestations of placental abnormalities was pathogenetically caused by infection from woman in labor and the fetus and include focal delay maturation of the villi, polymorphonuclear inflammatory infiltration, stasis of uniform blood elements in the blood vessels of the placenta, sclerotic fibrinoid villi.

Conclusion:

Conclusions The performed studies revealed pathological changes in the placenta tissue in woman in labor with a positive TORCH infection test, which pathogenetically confirms the development of IUI in newborns. The results of research, which are already being carried out,

will allow better understanding of the mechanisms of normal pregnancy support and the birth of healthy infant.

WSPID19-0291 E-Poster Presentations E-Poster discussion - Stream 3B: Perinatal and Congenital Infections

VERTICAL ENTEROVIRUS-INFECTION BY BREAST MILK – A CASE REPORT

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Background:

Enterovirus-infections can cause severe infections during the neonatal period. Breast milk as a possible source of infection has only been discussed, but has never been proven before.

Aims:

To provide evidence for the existence of vertical transmission of Echovirus type 30 by breast milk.

Methods:

We report the case of a 31+5 week preterm infant delivered by Cesarean section due to severe maternal enterovirus (Echovirus type 30) infection.

Results:

Within the first days after birth the neonate showed clinical signs of infection. Neonatal virus PCR's from nasopharynx and rectum confirmed echovirus type 30. In addition breast milk was tested and a copy number of more than 8 million copies per ml of echovirus type 30 was quantified.

Conclusion:

This is the first report of transmission of enterovirus from the mother to the newborn infant by breast milk. Particularly in premature infants, care must be taken in mothers presenting with severe enterovirus infection.

WSPID19-0388 E-Poster Presentations E-Poster discussion - Stream 3B: Perinatal and Congenital Infections

CONGENITAL MEASLES: 2 CASE REPORTS AND LITERATURE REVIEW

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Background:

Measles is a global re-emerging disease with high morbidity and mortality. Between 2014 to 2018, the incidence of measles had been increasing in Thailand. The clinical manifestations of congenital measles are non-specific and sometimes severe.

Aims:

To describe clinical manifestations and treatment outcomes of congenital measles.

Methods:

A retrospective chart review of congenital measles at Charoenkrungpracharak Hospital in 2018 was done. A Literature search was conducted in PubMed with search terms congenital measles. An additional search was done using the references of identified literature.

Results:

Two cases of congenital measles were identified and reported. Mothers of both neonates developed clinical manifestations of measles infection 8 days before and on the day of delivery. The neonates developed maculopapular (MP) rash at day of life (DOL) 1 and DOL 6, respectively. Intravenous immunoglobulin (IVIG) was given to both neonates. There were no complications from IVIG and measles itself. According to our literature search, there were 12 articles that reported 18 additional congenital measles cases from 1982 to 2016. twenty cases including our patients have been described. The most common manifestation was MP rash in 12 cases (60%). the median time rash to rash onset between mother and neonate was 5 days (IQR: 3.5-6). IVIG were given to 18 cases (90%). There were no serious complications such as pneumonia or measles encephalitis reported.

Conclusion:

Although the congenital measles is a rare disease, it still occurs. Our case reports and literature review demonstrate that MP rash is the most common manifestation. Treatment with IVIG resulting in favorable outcomes.

WSPID19-0444 E-Poster Presentations E-Poster discussion - Stream 3B: Perinatal and Congenital Infections

DELAYED OSTEOMYELITIS AND ARTHRITIS; AN UNUSUAL COMPLICATION OF NEONATAL CANDIDA ALBICANS SEPSIS

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Background:

While invasive *Candida* infections are a major cause of morbidity and mortality in preterm infants, osteoarticular complications are rare

Aims:

We describe an osteoarticular *Candida* infection complicating a central line infection in a preterm born at 27 weeks gestation with literature review.

Methods:

On day 9 of life our patient became septic with positive cultures of blood, skin and central line for *Candida albicans* for which she received fluconazole. At day 55 she developed a swollen right knee. Imaging demonstrated synovitis and osteomyelitis of the knee/distal femur. Blood culture became positive for *E. coli*, but β -D-glucan was also positive. 10 days into treatment with antibiotics and fluconazole, synovial fluid was aspirated for a second time which turned culturepositive for *Candida albicans*, still fluconazole sensitive. Additional X-rays showed delayed ossification, osteopenia, osteolysis and fractures compatible with both rickets and osteomyelitis. Clinically and biochemically our patient is improving and oral fluconazole treatment will be continued for at least 6 months.

Results:

While in adults there is a shift towards treating osteoarticular *Candida* infections with echinocandins, in neonates with invasive *Candida* infections amphotericin B deoxycholate remains the first choice with fluconazole and lipid forms of Amphotericin B as reasonable alternatives (IDSA 2016; Bassetti 2018; Remington and Klein 2016). Lipid forms of Amphotericin B might penetrate well in bone, but the 2016 IDSA guidelines warn about increased mortality in neonates, possibly related to their reduced kidney penetration (Ascher 2012).

Conclusion:

The treatment response of *Candida* osteoarthritis to fluconazole was slow but steady in our patient.

WSPID19-0506 E-Poster Presentations E-Poster discussion - Stream 3B: Perinatal and Congenital Infections

HIGH RUBELLA SEROPREVALENCE AMONG NEONATES WITH FEATURES OF CONGENITAL RUBELLA SYNDROME AT A TERTIARY HOSPITAL IN NORTH WESTERN TANZANIA

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Background:

Congenital Rubella Syndrome (CRS) is among the causes of infant mortality and lifelong disability due to severe birth defects. There has been an increasing number of neonates born with congenital abnormalities suggesting CRS, at the same time the rubella seroprevalence among pregnant mothers and healthy school children in the northwestern Tanzania is noted to be high.

Aims:

This study aimed to determine prevalence of rubella antibodies and associated factors among infants suspected to have CRS.

Methods:

This cross sectional hospital based study included174 infants aged ≤ 12 months with clinical features of CRS. The study was conducted between September 2017and March 2018 at Bugando Medical Centre. Collection of Social demographicand other relevant information were done hand in hand with screening for clinical symptoms suggestive of CRS and Blood samples were collected. indirect enzyme-linked immunosorbent assay (ELISA)Test were conducted on collected sera to test for specific Rubella IgM and IgG antibodies.

Results:

The majority of enrolled infants were below 1 year of age;of these 83 (47.7%) were neonates and only 13.2% had received MR vaccine. Out of 174 infants investigated, 111 (63.8%, 95%CI: 56.6-70.9) were IgG Rubella seropositive whereas none was IgM Rubella seropositive.Twenty six (14.9%) had probable CRS. In multivariate logistic regression analysis being neonate was he only factor that independently predicted rubella IgG seropositivity (OR 2.3; 95% CI 1.2 – 4.4; p=0.012)

Conclusion:

A significant proportion infants with at least one CRS feature are IgG seropositive and this is predicted by being a neonate ; this indicates high maternal rubella seroprevalence.

WSPID19-0081 E-Poster Presentations E-Poster discussion - Stream 3B: Viral Gastrointestinal Infections

ROTAVIRUS VACCINE WILL IMPROVE CHILD SURVIVAL BY MORE THAN JUST PREVENTING DIARRHEA SENJUTI SAHA, MATHURAM SANTOSHAM, MANZOOR HUSSAIN, ROBERT E. BLACK, SAMIR K. SAHA

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Background:

Manzoor Hussain Professor of Pediatrics Dhaka Shishu Hospital Bangladesh President, Bangladesh Paediatric Association President, Bangladesh Society for Paediatric Infectious Diseases

In the largest pediatric hospital of Bangladesh, where there is a fierce competition for beds, we found in a 11-month period that 12% of 23,064 admissions were due to gastrointestinal infections, 54% of which were caused by rotavirus.

Despite the high burden of rotavirus diarrhea, uptake of rotavirus vaccines in Asia remains low. This primarily stems from a perception of rotavirus as a non-life-threatening pathogen amidst a background of competing health priorities and limited resources.

Aims:

Impact of Rotavirus Vaccine in Child Survival:

When determining vaccine policies, it would be shortsighted to not consider the impact on morbidity and mortality of cases that are refused admission because of the hospitalization of children with a preventable disease as rotavirus diarrhea.

Methods:

To gain a better understanding of the dynamics of bed usage, we looked at admission and refusal records in the hospital in a 11-month period.

Results:

Approximately 25% of total cases requiring hospitalization were refused because of unavailability of beds. Most refused cases bear high risks of death or disability, if not treated

timely. In our hospital, routine use of a rotavirus vaccine with 41% efficacy will release 629 beds per year to accommodate previously refused cases.

Conclusion:

Inclusion of the vaccine in the Expanded Program on Immunization (EPI) will not only reduce morbidity because of diarrhea, but also enable treatment for patients with other communicable and non-communicable diseases by increasing resource availability and access to healthcare.

WSPID19-0149 E-Poster Presentations E-Poster discussion - Stream 3B: Viral Gastrointestinal Infections

ROTAVIRUSES AS AN IMPORTANT CAUSE OF PEDIATRIC HOSPITALISATIONS AND NOSOCOMIAL INFECTIONS IN BIALYSTOK, POLAND

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Background:

Rotaviruses are a significant cause of pediatric hospitalizations in developed countries. Given non-specific symptomatology in the early period of the disease, high contagiousness and resistance to wide range of disinfectants, rotavirus infection is also a major cause of nosocomial infections in pediatric wards.

Aims:

To determine the proportion of rotaviruses in the etiology of acute viral diarrhea in hospitalized children (1), to establish seasonal patterns of rotavirus disease (2), to assess the importance of rotaviruses in nosocomial infections (3), and to determine prevalence of circulating rotavirus genotypes (4).

Methods:

An analysis of children hospitalized with acute gastroenteritis hospitalized in teaching hospital in Bialystok, Poland over the period of 3 years.

Results:

Of 2225 acute gastroenteritis cases, 735 (33.0%) were caused by rotaviruses, 125 (5.6%) by noroviruses, and 67 (3.0%) by adenoviruses. Most of the rotavirus infections were observed in winter and spring seasons, with the peak incidence in March. Gastroenteritis accounted for 289/469 (60.3%) hospital-acquired infections with rotavirus being the most common etiological agent (234/289, 81.0%). Rotaviruses caused 64% and 9% of nosocomial infections in non-surgical in surgical wards, respectively. Seasonality of nosocomial rotavirus infections was identical to that observed in the community. Molecular genotype of rotaviruses was analyzed in the group of 48 children revealing G9P[8] to be the dominant serotype it the study group (18/48, 37.5%).

Conclusion:

Results of the current study confirm the significance of rotavirus as an etiological agent of both community-acquired and hospital-acquired infections in pediatric population strengthening the need to increase vaccine coverage.

WSPID19-0336 E-Poster Presentations E-Poster discussion - Stream 3B: Viral Gastrointestinal Infections

TEN YEAR TREND OF ROTA VIRUS INFECTION PREVALANCE AMONG CHILDREN UNDER FIVE YEARS AND ASSOCIATED FACTORS PRESENTING TO A TERTIARY CARE HOSPITAL OF PAKISTAN

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Background:

Rota virus remains one of the common cause of diarrhea in children. In Pakistan, there is limited data is present to understand the epidemiology of the disease.

Aims:

To explore 10-years trend in prevalence of Rota virus infection among under-5 children presenting to tertiary care hospital in Pakistan with acute diarrhea and ascertain associated clinical features.

Methods:

This descriptive study was carried out on all the children under five years of age presenting with acute diarrhea in Mayo Hospital, Lahore from August 2008 to December 2018. The clinical profile was recorded on a performa. Dehydration status and management was classified according to the WHO guidelines. Stool samples were analyzed for Rota virus using ELISA. SPSS version 20 used for analysis.

Results:

Of 4467 cases, 15% tested positive for Rota virus. 72% were under 12 months. Rate of Rota viral diarrhea was significantly higher in males (p<0.05). Of positive cases, 49%; (p=0.01) had fever, 63% (p<0.05) had vomiting. About half had "some dehydration" whereas 10% had severe dehydration. these presented more commonly in December/ January (25%) and June (17%). Since the introduction of Rota vaccine as a part of routine EPI schedule in some parts of the province for the last 1 ½ years, the number of cases admitted for IV rehydration has decreased as is the duration of hospital stay.

Conclusion:

Continuous surveillance is essential to understand he epidemiological trend of Rota viral infection. Since the routine introduction of Rota virus vaccine the change in burden, severity etc yet needs to be documented.

WSPID19-0401 E-Poster Presentations E-Poster discussion - Stream 3B: Viral Gastrointestinal Infections

EPIDEMIOLOGY AND CLINICAL CHARACTERISTICS OF ROTAVIRUS GASTROENTERITIS IN CHILDREN UNDER FIVE YEARS IN KWARA, NORTH-CENTRAL NIGERIA

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Background:

Rotavirus remains the leading cause of diarrhoea related hospitalizations and death globally. Despite this, there is only sporadic data regarding its epidemiology in Nigeria.

Aims:

The aim of the study is to describe the prevalence, seasonal distribution of rotavirus diarrhoea and the clinical characteristics of children with rotavirus gastroenteritis in Kwara, North-Central Nigeria.

Methods:

The study was conducted at University of Ilorin Teaching Hospital. The study duration was from January 2013 to December 2018. Children aged less than five years hospitalized with diarrhoea were recruited consecutively. Relevant clinical data was collected. Stool samples were collected and tested for rotavirus by ELISA. Data was entered into the WHO Rotavirus surveillance module and analysed using EPI-Info.

Results:

903 subjects were recruited over the study period. The prevalence of rotavirus gastroenteritis amongst children under five with diarrhoea was 31.7%. The annual prevalence of rotavirus diarrhoea ranged between a low of 23.4% in 2014 to a high of 56.5% in 2013. All-cause diarrhoea hospitalizations peaked in January, June and July. Similarly, rotavirus diarrhoea hospitalizations peaked in January with a smaller peak in June and July. Peak age group for all-cause and rotavirus diarrhoea hospitalizations was 0-11 month with 413(45.7% of cases) and

181 (63.3%) cases respectively. There was no difference in mean temperature, duration of illness and duration of vomiting between rotavirus positive and negative cases but duration of diarrhoea was significantly shorter amongst subjects with rotavirus diarrhoea (p=0.024).

Conclusion:

Rotavirus diarrhoea is common in Kwara, North-Central Nigeria and infants carry most of the burden of the disease.

WSPID19-0420 E-Poster Presentations E-Poster discussion - Stream 3B: Viral Gastrointestinal Infections

ETIOLOGY OF NON-ROTAVIRUS-ASSOCIATED GASTROENTERITIS AMONG HOSPITALIZED CHILDREN UNDER FIVE YEARS OF AGE IN THE PHILIPPINES, 2015 – 2016

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Background:

Diarrheal disease continues to be among the top leading cause of child mortality in the Philippines. Rotavirus remained as the leading etiology of acute watery diarrhea in children under 5 years of age. Nearly forty percent of confirmed rotavirus cases were identified from the National Rotavirus Surveillance.

Aims:

To estimate the burden of disease caused by non-rotavirus-associated gastroenteritis in hospitalized children in the Philippines.

Methods:

Randomly selected samples collected in 2015 to 2016 were included in the study. Stool specimens were tested for presence of norovirus (Genogroup I and II) and enteric adenovirus (Types 40/41) using real-time polymerase chain reaction.

Results:

Enteric pathogens were seen in 55% (473/864) of the samples tested. Results showed that mono-infections were seen at 45% (391), while multiple infections in each case were seen at 10% (82). Both norovirus and adenovirus yielded a positivity rate of 14%. Comparing the clinical characteristics of cases infected with norovirus, vomiting and fever were both present at 82% and 52%, respectively. Likewise, cases infected with adenovirus presented vomiting and fever at 76% and 50%, respectively.

Conclusion:

This data showed that enteric viruses are the most common cause of acute gastroenteritis in children less than 5 years of age in the Philippines. Such findings imply that continued surveillance monitoring is essential in planning the disease control strategies for diarrhea. Data

from this study can provide policymakers with accurate facts to help in the nationwide vaccination and health agenda.

WSPID19-0153 E-Poster Presentations E-Poster discussion - Stream 4B: Antimicrobial Agents and Resistance II

DETERMINANTS OF PRE-HOSPITAL DRUG USAGE FOR ACUTE DIARRHOEA AT A CHILDREN SPECIALIST HOSPITAL IN NORTH CENTRAL NIGERIA <u>T. Kayode-Alabi</u>¹, K. Ernest¹, A. Saka¹, R. Ibraheem¹, K. Alabi¹ ¹University of Ilorin Teaching Hospital, Paediatrics, Ilorin, Nigeria

Background:

Diarrhoea disease is an important contributor to under-five morbidity and mortality. Most diarrhoeal deaths may be averted if treatment with Oral Rehydration Salt (ORS) and zinc is started early in the home, yet irrational use of potentially toxic drugs, with unknown efficacy remains the rule.

Aims:

To determine the prevalence and determinants of drug use for diarrhoea illness.

Methods:

A cross-sectional, descriptive study was carried out using a predesigned questionnaire to determine pre-hospital visit use of drug between January and May 2019. Consecutive recruitment of mother-child pair (n=400) presenting for acute diarrhoea was done. Children who had commenced either ORS or zinc and those with severe dehydration were excluded.

Results:

A total of 254 (63.5%) participants had been commenced on over the counter medications before hospital presentation; 54.3% used one drug and 45.7% had use two to five different drugs. Types of medications used included antibiotics, anti-malarial, analgesics, anti-emetic, and anti-motility drugs. Logistic regression analysis showed that duration of diarrhoea, fever, dehydration and presence of other symptoms were significant predictors of pre-hospital drug use, each p < 0.05.

Conclusion:

The study highlights that almost two-thirds of the participants had commenced at least one drug, mostly unwarranted at home. More emphasis should be placed on educating caregivers of under-five children with diarrhoea on the rational use of drugs, in order to prevent and reduce diarrhoea-associated morbidity and mortality.

WSPID19-0187 E-Poster Presentations E-Poster discussion - Stream 4B: Antimicrobial Agents and Resistance II

ANTIMICROBIAL RESISTANCE IN SALMONELLA ENTERICA, SEROVAR TYPHI AND PARATYPHI A, ESPECIALLY TO FLUOROQUINOLONES, ISOLATED FROM CHILDREN ADMITTED TO A TERTIARY CARE PEDIATRIC HOSPITAL IN INDIA <u>S. Athmanathan</u>¹ ¹Rainbow Children's Hospital, Department of Microbiology, Bengaluru, India

Background:

Enteric fever (typhoid and paratyphoid fever), a systemic infection caused by *Salmonella enterica* serovars Typhi and Paratyphi, continues to be a major health problem, especially in developing countries. Several factors, especially antimicrobial resistance of the organism, remain an important cause for this continuing scourge.

Aims:

This study aims to assess the antimicrobial resistance in salmonella strains isolated from children with enteric fever admitted to a tertiary care pediatric hospital in South India.

Methods:

A total of 26 strains of *Salmonella* were isolated from 26 children aged 4 months to 14 years who were admitted with a clinical diagnosis of enteric fever. Identification and antimicrobial susceptibilities were performed using BD Phoenix 100 (Automated Microbial Identification and Susceptibility system, Becton Dickinson and Company, Maryland, USA) and Kirby Bauer disk diffusion technique.

Results:

Majority of the isolates (22/26) were identified as *Salmonella enterica* Serovar Typhi, while four isolates were identified as *Salmonella enterica* Serovar Paratyphi A. Antimicrobial resistance (expressed as percentage) observed were as follows: ampicillin(0), amoxicillin-clavulanate(0), azithromycin(19), cefipime(0), cefixime(0), cefotaxime(0),ceftazidime(0), ceftriaxone(0), chloramphenicol(0), ciprofloxacin(72), imipenem(0), levofloxacin(19.2), meropenem(0), nalidixic acid(100), piperacillin(0), piperacillin-tazobactam(0) and trimethoprim-sulphamethoxazole(8.7).

Conclusion:

Antimicrobial resistance to fluoroquinolones (nalidixic acid, ciprofloxacin and levofloxacin) was often observed followed by azithromycin and co-trimoxazole when compared to other antimicrobials. Further, *Samonella enterica* isolates continued to be susceptible to many

commonly used antimicrobials. A constant vigil on the antimicrobial susceptibility pattern and rational use of antimicrobials, especially fluoroquinolones, for the treatment of enteric fever based on the antibiogram of isolates, will help prevent emergence of multi drug resistance *Salmonella enterica* strains.
WSPID19-0417 E-Poster Presentations E-Poster discussion - Stream 4B: Antimicrobial Agents and Resistance II

THE IMPACT OF INFECTIOUS DISEASES OVERSIGHT ON OUTPATIENT PARENTERAL ANTIMICROBIAL THERAPY OUTCOMES IN CHILDREN

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Background:

The use of outpatient parenteral antimicrobial therapy (OPAT) is increasing in children. The question regarding OPAT has evolved from whether OPAT can be used, to how OPAT can be used in the best way. We implemented several initiatives through Infectious Diseases (ID) oversight to improve the quality of our OPAT service.

Aims:

To evaluate the impact of ID oversight on a paediatric OPAT service.

Methods:

A pre/post observational study of patients admitted for OPAT at the Royal Children's Hospital Melbourne. We compared two periods: pre-ID (1/8/2012–31/7/2015) and post-ID oversight (1/8/2015-31/7/2018). ID oversight involved OPAT-specific antibiotic guidelines, weekly ID meetings to discuss patient management and antibiotic courses planned for >2 weeks to trigger an ID referral. Outcomes were appropriateness and duration of antibiotics, complications, and readmissions to hospital.

Results:

Over 6 years, 2,771 OPAT episodes occurred (pre-ID: 1,272 and post-ID: 1,499). Median age was 6.6 years in both periods. The most frequent diagnoses were infectious exacerbations of cystic fibrosis (634, 23%), cellulitis (547, 20%) and musculoskeletal infections (329, 12%). The commonest antibiotic was ceftriaxone (45%). There were fewer unplanned readmissions post-ID oversight (8% versus 6%, p=0.03). Antibiotic use was appropriate in a higher proportion of episodes post-ID oversight (94% versus 97%, p<0.01). Improvement was seen in duration (inappropriately long), choice (too broad) and dosing (too low). Duration of antibiotics was significantly shorter post-ID oversight (22 days versus 14 days, p<0.01).

Conclusion:

ID oversight resulted in improved appropriateness and shorter durations of antibiotics, improving quality of care.

WSPID19-0438 E-Poster Presentations E-Poster discussion - Stream 4B: Antimicrobial Agents and Resistance II

CHARACTERIZATION OF BETA-LACTAMASES AND EFFLUX PUMPS IN CLINICAL ISOLATES OF MULTIDRUG RESISTANT PSEUDOMONAS AERUGINOSA FROM A PEDIATRIC HOSPITAL IN MEXICO CITY

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Background:

Pseudomonas aeruginosa infections are one of the main healthcare associated infections. An increase in the incidence of multi drug resistant P. aeruginosa (MDR-PA) has been reported. It expresses multiple resistance mechanisms such as beta-lactamases and expulsion systems.

Aims:

We aimed to characterize the mechanisms of resistance expressed by P. aeruginosa isolated from clinical samples.

Methods:

MDR-PA strains were identified from clinical samples of pediatric patients from Hospital Infantil de Mexico Federico Gómez in Mexico City. Presence of carbapenemases was confirmed by PCR looking for beta-lactamases: VIM, KPC, IMP, NDM, OXA. Gene expression of mexA, mexC, mexE and mexX was performed by real-time PCR using the 16S gene. An increase in gene expression > 2.0-fold was considered significant.

Results:

We identified 51 P. aeruginosa strains that met the definition of MDR, 74% from urine cultures, 22% blood cultures, 2% cerebrospinal fluid and pleural fluid respectively. Metallo betalactamase (MBL) expression was documented In 66.6% of the strains, being VIM, the most frequent in 55.5%, followed by IMP 36.1%, KPC 5.5% and NDM 2.7%. Two strains expressed 2 types of MBL (IMP + NDM and IMP + VIM). 94.1% strains expressed efflux systems: MexX 35.7%, MexE 27.6%, MexC 24.1% and MexA 12.5%. The 4 expulsion systems were expressed by 7 strains. Four strains fulfilled the definition of MDR expressing exclusively efflux systems.

P. aeruginosa expresses an important combination of mechanisms of resistance. In our population, the efflux systems were the main resistance mechanism, which can confer even the multidrug resistance.

WSPID19-0464 E-Poster Presentations E-Poster discussion - Stream 4B: Antimicrobial Agents and Resistance II

PHARMACOKINETICS OF INTRAVENOUS COLISTIN LOADING DOSE IN CRITICALLY ILL CHILDREN

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Background:

Colistin is used for multidrug-resistant gram-negative bacilli (MDR-GNB) treatment. From adult pharmacokinetic studies, a loading dose is suggested. However, the pharmacokinetic study in the pediatric population is limited.

Aims:

We aimed to study pharmacokinetic (PK) parameters of an intravenous colistin loading dose in critically ill children.

Methods:

We conducted a prospective open-label PK study in patients aged 2-18 years, weight from 10 kilograms who were prescribed colistin. Colistin 4 mg/kg/dose was given as a loading dose. Blood samples were collected at predose, 1, 2, 4, and 8 hours. Plasma colistin was measured by liquid chromatography-mass spectrometry technique. Loading dose PK parameters including maximum plasma concentration (Cmax), Area under the curve (AUC0-t), the volume of distribution (Vd), and half-life (t1/2) were reported. Cmax/MIC (target >10) was used as the desired PK/PD index.

Results:

Ten subjects (60% males) were enrolled. The median (IQR) age was 6.9 (3.4-11.0) years. Mean (\pm SD) PK-parameters were Cmax 6.1 \pm 2.4 mcg/mL, AUC0-t 26.5 \pm 12.5 mcg/mL*h, Vd 0.7 \pm 0.4 L/kg, and t1/2 2.9 \pm 0.6 h. In case of MIC value was <0.5 mcg/mL, 70% of subjects achieved Cmax/MIC >10.

A loading dose of intravenous colistin presented with the adequate Cmax to achieve desired PK/PD index. A loading dose of colistin is more optimizing especially for MDR-GNB treatment which the adequate control of infection within 24 hours is related to treatment outcomes.

WSPID19-0466 E-Poster Presentations E-Poster discussion - Stream 4B: Antimicrobial Agents and Resistance II

RISK FACTORS FOR CARBAPENEM-RESISTANT KLEBSIELLA PNEUMONIAE SEPSIS IN THE NEONATAL INTENSIVE CARE UNIT OF A TERTIARY PUBLIC HOSPITAL

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Background:

Carbapenem-resistant Klebsiella pneumoniae (CRKP) was first isolated in our institution in November 2016, and from that time onward more cases were detected. The alarming increase in the number of cases had significant effect in the care of our patients due to the limited treatment options, limited isolation facilities, poor neonatal outcome and had incurred higher financial costs.

Aims:

to determine the risk factors for CRKP sepsis in neonates

Methods:

Case-control study. Cases were Carbapenem-resistant Klebsiella pneumoniae positive neonates. Controls were Carbapenem-Sensitive Klebsiella pneumoniae positive neonates.

Results:

On univariate analysis, cases were more likely to have the following: age of gestation < 35 weeks (p value 0.010), birth weight of < 2,400 grams (p value 0.005), and respiratory distress syndrome type I (p value 0.009). Cases were more likely to have undergone the following: umbilical venous catheterization (p value 0.005), jugular vein catheterization (p value 0.003), presence of orogastric tube (p value 0.005), parenteral nutrition infusion (p value 0.000), use of Ampicillin (p value 0.011), Meropenem (p value 0.000), and hospital stay of 25 days (p value 0.000).

Conclusion:

The risk factor strongly associated with CRKP neonatal sepsis was the use of umbilical catheter. Gentamycin had a protective effect in CRKP neonatal sepsis. The following although not strongly associated with CRKP sepsis has to be taken into consideration in the management of CRKP sepsis: age of gestation <34 weeks, birth weight <2,400 grams, respiratory distress syndrome type I, jugular vein catheterization, parenteral nutrition, use of ampicillin and meropenem, and prolonged hospital stay.

WSPID19-0082 E-Poster Presentations E-Poster discussion - Stream 4B: Molecular Diagnostics and Point of Care Techniques

PERFORMANCE OF GENEXPERT, LAMP, AND MGIT AGAINST THE COMPOSITE REFERENCE STANDARD FOR DIAGNOSIS OF CHILDHOOD INTRATHORACIC TB

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Background:

Because of the lack of standardized case definitions, an international expert panel proposed composite reference standard (CRS) for diagnosis of pediatric pulmonary tuberculosis (PTB) in year 2012.

Aims:

To evaluate the performance of modern diagnostic tests [GeneXpert, LAMP (loop-mediated isothermal amplification), and MGIT (Mycobacteria Growth Indicator Tube)] against CRS.

Methods:

This cross-sectional study was conducted in a tertiary care teaching hospital in Northern India. Children <14 years with ≥1 of the following were included: persistent fever and/or cough >2 weeks, weight loss ≥5% in last 3 months, and history of contact with a TB case. The confirmed and probable PTB were put in "PTB+" group. The samples were processed by Ziehl–Neelsen method, LAMP, GeneXpert, and MGIT tests. The diagnostic parameters were compared against CRS. The study was approved by Institute ethics committee.

Results:

Of 100 children, "PTB+" group constituted 58.5%. When compared against CRS, MGIT performed better in the terms of sensitivity (MGIT = 14% vs LAMP = 10.91% vs GeneXpert = 9.1%), though the specificity of all were 100%. When compared against MGIT, LAMP performed better than GeneXpert in terms of sensitivity (85.71% vs 71.43%), though the specificity of both were 100%. The agreement between the three tests, and the test-retest reliability was statistically significant.

Conclusion:

MGIT performed better in the diagnosis of pediatric PTB compared to both LAMP and GeneXpert (LAMP being better than GeneXpert). MGIT was negative in most cases of PTB, raising the possibility of over-diagnose by CRS.

WSPID19-0185 E-Poster Presentations E-Poster discussion - Stream 4B: Molecular Diagnostics and Point of Care Techniques

USEFULNESS OF GENE XPERT MTB/RIF FOR THE DIAGNOSIS OF TUBERCULOSIS IN PAEDIATRIC AGE GROUP- A RETROSPECTIVE COHORT STUDY

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Background:

Diagnosis of TB in children is a diagnostic challenge for clinicians. Multiple studies done globally based on the diagnostic accuracy, feasibility and the diagnostic value of GeneXpert. Majority of the studies are focussed towards the adult TB. Studies on paediatric tuberculosis is limited.

Aims:

Evaluate sensitivity and specificity of different diagnostic methods of tuberculosis

Correlate the diagnostic value of GeneXpert with other diagnostic methods

Methods:

Retrospective cohort study among 159 suspected TB patients between 28 days to 18 years from January 2015 to May 2018. Study was focused on different diagnostic tools of tuberculosis with a special attention on usefulness of Gene Xpert as a diagnostic tool for both pulmonary and extra pulmonary TB. Chi-square test used for statistical analysis. The data was analyzed using SPSS package (Version 18.5).

Results:

Out of 159 cases, 90 cases were diagnosed and treated as tuberculosis which includes PTB (45.56%), EPTB (47.78%), 4 cases of disseminated TB (4.44%) and 2 cases of Disseminated BCG (2.22%). GeneXpert has high diagnostic value in both PTB and EPTB. The sensitivity, specificity, PPV and NPV in children observed as 95.55%, 94.69%, 87.77% and 98.16% respectively. Sensitivity of GeneXpert is much higher than AFB smear (47.5%). Sensitivity and specificity of GeneXpert in respiratory sample (96.29% & 96.42%) and tissue sample (100 % & 95.16%) were near equal.

GeneXpert remains an initial investigation in paediatric tuberculosis. GeneXpert is equally effective as MTB culture for diagnosis of Paediatric TB. It should be offered even for all EPTB cases since it has high diagnostic value.

WSPID19-0196 E-Poster Presentations E-Poster discussion - Stream 4B: Molecular Diagnostics and Point of Care Techniques

COMPARISON OF DIAGNOSTIC METHODS FOR STREPTOCOCCAL TONSILLOPHRAYNGITIS

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Background:

Throat culture is the gold standart for streptococcal pharyngitis. But it takes minimum 24 hours to learn the result of the test. Rapid antigen tests are commonly used, because the test results fastly, generally within 1-2 hours. Sensitivity and specifitiy of rapid streptococcal antigen tests differ in studies. Loop-mediated Isothermal Amplification (Lamp-PCR) from molecular methods is developed becouse of RADT's variable sensitivity results.

Aims:

Here in we aimed to analyse senstivity and specifity of rapid streptococcal antigen test under the guidance of Health Ministry in Turkey.

Methods:

This study was conducted in Gazi University Faculty of Medicine. 404 patients who were accepted with sore throat without viral symptoms, were tested for streptococcal pharyngitis, with both throat culture, Lamp PCR and rapid antigen test.

Results:

| | | Throat Culture | | Total |
|------------|-----------------|----------------|----------|-------|
| | | Positive | Negative | |
| Rapid test | <u>Positive</u> | 61 | 17 | 78 |
| | <u>Negative</u> | 42 | 284 | 326 |
| Lamp PCR | Positive | 62 | 51 | 113 |
| | <u>Negative</u> | 41 | 250 | 291 |
| Total | | 103 | 301 | 404 |

Table 1- Rapid Test, Lamp PCR and Throat Culture Comparison

Conclusion:

Rapid streptococcal antigen test and Lamp PCR has a high specifity. Negative test results should be cofirmed with throat culture but positive results should lead us to antibiotic treatment.

WSPID19-0225 E-Poster Presentations E-Poster discussion - Stream 4B: Molecular Diagnostics and Point of Care Techniques

INDETERMINATE QUANTIFERON-TB RESULTS IN CHILDREN

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Background:

Interferon- γ release assays for the diagnosis of tuberculosis (TB) infection can yield indeterminate results. Indeterminate results lead to a significant dilemma in clinical management, as they do not convey information about the patient's TB infection status.

Aims:

We assess the prevalence of Indeterminate test results of QuantiFERON-TB Gold In-Tube (QFT-GIT) assay in children of all ages

Methods:

We reviewed the results of all QFT-GIT assays from children aged \leq 18 years attending the Severance Hospital over a 12-year period (september 2006 to July 2017) to specifically determine the impact of age on test performance. For statistical analyses, three age groups were created: group A (< 5 years of age), group B (5 to 9 years) and group C (\geq 10 years of age).

Results:

During the period investigated, a total of 2,707 QFT-GIT assays were performed on 849 group A, 559 group B, and 1,299 group C children. The proportion of indeterminate results was significantly higher in A and B group (11.8% and 11.6%, respectively) than in C group (6.1%; chi-square test, P < 0.0001). The majority of indeterminate QFT-GIT results were due to failed positive controls (n = 240; 98.4%); the remainder were due to high interferon gamma concentrations in the nil control sample (n = 4; 1.64%).

Conclusion:

Children younger than 10 years of age were more likely to have an indeterminate assay result than children older than 10 years. Further studies evaluating themechanisms of QFT-GIT indeterminate results in children are needed.

WSPID19-0240 E-Poster Presentations E-Poster discussion - Stream 4B: Molecular Diagnostics and Point of Care Techniques

ACCURACY OF NASOPHARYNGEAL ASPIRATE GENEXPERT COMPARED TO GASTRIC ASPIRATE TB CULTURE AND GENEXPERT IN DIAGNOSING PULMONARY TUBERCULOSIS IN PEDIATRIC PATIENTS IN A TERTIARY GOVERNMENT HOSPITAL J. Morcilla¹, M.L.A. Gonzales², A.L. Ong-Lim² ¹Philippine General Hospital, Pediatrics, Lipa, Philippines ²Philippine General Hospital, Pediatrics, Manila, Philippines

Background:

Gastric aspirate (GA), commonly used for bacteriological diagnosis of pulmonary tuberculosis (PTB) in children, involves an invasive procedure that may cause discomfort and sometimes require admission. Nasopharyngeal aspirate (NPA) can be easily and non-invasively obtained and may be a better specimen for GeneXpert and TB culture compared with GA.

Aims:

This study aims to determine the accuracy of NPA GeneXpert in diagnosing PTB among pediatric patients 0-18 years old with presumptive TB using GA GeneXpert as the initial screening test and GA culture as the gold standard.

Methods:

This prospective, cross-sectional diagnostic study involved collection of single NPA and GA specimens for GeneXpert and culture in patients seen at a tertiary government hospital in the Philippines. Sensitivity, specificity and predictive values with 95% confidence intervals of the NPA GeneXpert were determined compared to GA GeneXpert and GA culture.

Results:

100 pediatric patients (mean age 6 ± 5.63 years) were enrolled, among which 50 were clinically diagnosed PTB, 16 bacteriologically- confirmed, and 34 were not PTB Disease. Sensitivity, specificity, positive and negative predictive values of the NPA GeneXpert compared to GA GeneXpert were 70%, 96.67%, 70% and 96.67%, respectively. Sensitivity, specificity, positive and negative predictive values of the NPA GeneXpert compared to GA culture were 40%, 91.58%, 20% and 96.67%, respectively.

GeneXpert testing on a single NPA specimen is a highly specific and rapid test that can be used to diagnose PTB in pediatric patients, particularly where gastric aspiration or mycobacterial culture is not feasible.

WSPID19-0406 E-Poster Presentations E-Poster discussion - Stream 4B: Molecular Diagnostics and Point of Care Techniques

TNF-RELATED APOPTOSIS-INDUCING LIGAND (TRAIL) PROTEIN AS A MARKER FOR DISEASE SEVERITY IN PATIENTS WITH ACUTE INFECTION

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Background:

TRAIL is a member of the tumor necrosis factor family implicated in programmed cell death. Previous studies demonstrated that TRAIL can serve as a useful biomarker for distinguishing between bacterial and viral infections when computationally combined with CRP and IP-10. Here we report that low TRAIL concentration in the blood is significantly correlated with poor patient prognosis and higher disease severity

Aims:

1

Methods:

We studied 765 hospitalized and emergency department patients with acute infection and controls with no apparent infection, prospectively recruited between 2009 and 2013. Patient etiology (319 bacterial, 334 viral, and 112 non-infectious) was determined by a panel of three independent experts based on comprehensive clinical and laboratory assessment that included two multiplex- PCR panels applied to nasal swabs . Serum TRAIL levels were measured using commercially available ELISA kits (MeMed, IL).

Results:

TRAIL serum levels were significantly decreased in bacterial patients and increased in viral patients as compared to controls (bacterial 45±33; viral 145±110; controls 77±32, P<10-15). Further analysis of the infectious patients group (n=653), revealed that patients with TRAIL levels lower than 25 pg/ml (n=93), were characterized by more severe disease outcome compared to patients with higher TRAIL levels (n=560) including longer hospitalization duration (7.5±11.3 vs 1.9±2.2 days, P<10-5), and need for mechanical ventilation and ICU admission (6/93 vs 0/560, P<10-5).

TRAIL serum levels lower than 25 pg/ml were correlated with longer hospitalization duration, ICU admission and severe clinical syndromes. These results suggest that TRAIL has the potential to serve as a marker for disease severity.

WSPID19-0100 E-Poster Presentations E-Poster discussion - Stream 4B: Epidemiology of Viral Infections

EPIDEMIOLOGICAL - CLINICAL CHARACTERISTIC AND RISK FACTORS FOR SEVERE ACUTE RESPIRATORY INFECTION IN CHILDREN AGED BELOW FIVE YEARS *V. Minh Hien*¹

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Background:

It is important to identify the risks of severe ARIs to reduce morbidity and mortality caused byacute respiratory infections (ARIs). Our study aims to: investigate epidemiological-clinical characteristics and clarify risk factors relating to severe ARIs.

Aims:

Our study aims to: investigate epidemiological-clinical characteristics and clarify risk factors relating to severe ARIs.

Methods:

Children aged from 1 month - 5 years presented cough or signs of severe ARIs admitted to Pediatric department including ICU - Khanh Hoa general hospital from 6/2015 – 12/2018 were enrolled. The analysis to identify the major risk factors for severe ARIs were compared between two groups: ICU and non-ICU based on epidemiology, clinical presentations and result of investigations.

Results:

A total of 376 ARIs admitted ICU during the study period. In which, the mortality rate was 5%, median age was 5.1 months (IQR: 2.0 - 12.5) and the duration of hospitalization was 7 days (IQR: 5.0 - 10). Age < 6 months, malnutrition were considered to be risk factors for severe ARIs in our study. Concerning clinical features, chest wall indrawing (93.1%), tachypnea (91.8%), wheezing (83.2%), crackles (63.6%) were associated with severe ARIs (p <0.001). Moreover, enterovirus was responsible for 31.4% of the ICU cases whereas it had not been detected in the non ICU group.

Conclusion:

Enterovirus is a commonest viral detection in severe ARIs. Age < 6 months, malnutrition were identified to be risk factors for ICU related ARIs.

WSPID19-0106 E-Poster Presentations E-Poster discussion - Stream 4B: Epidemiology of Viral Infections

GENETIC DIVERSITY AND MOLECULAR EVOLUTION OF EMERGING COXSACKIEVIRUS A6 BASED ON WHOLE-GENOME SEQUENCES IN MAINLAND OF CHINA, 2010-2018

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Background:

Hand, foot and mouth disease (HFMD) have had the highest yearly incidence that over 10 million cases were annually reported in China from 2009 to 2018. Since 2013, coxsackievirus A6 (CV-A6) has caused many large-scale outbreaks of HFMD, surpassing EV-A71 and CV-A16 as the leading HFMD pathogen in many Chinese provinces.

Aims:

A comprehensive study into CV-A6 whole-genome sequences instead of using only VP1 sequences covering extensive areas in China on a long-term timescale is a lacking, yet important research issue. Genetic analysis based on the whole-genomes was performed to investigate the characteristics of evolution, epidemiology and transmission of emerging CV-A6 in China.

Methods:

More than 120 representative CV-A6-associated HFMD samples isolated between 2010 and 2018 were selected from the HFMD Surveillance Network established in our laboratory, based on the VP1 phylogeny, isolated years and isolated regions, for whole genome sequencing. The temporal phylogenies and rates of evolution were analyzed using MCMC method.

Results:

A total of four recombination forms (RFs), which were designated by different 3Dpol phylogeny and confirmed via whole-genomic characteristics, were detected over the past decade. RF-A, J, K, and L CV-A6 was found to have emerged in 2006, 2009, 2011, and 2012 in China, respectively. Bayesian temporal reconstruction of CV-A6 revealed the evolutionary history of all RFs.

Conclusion:

Genetic characteristics and bioinformatics of CV-A6 using whole-genomes yielded richer and more detailed information than using only VP1 structural coding genes, future genetic studies of virus should not be confined to the research on structural coding gene.

WSPID19-0182 E-Poster Presentations E-Poster discussion - Stream 4B: Epidemiology of Viral Infections

ASEPTIC MENINGITIS IN CHILDREN: ANALYSIS OF 227 CASES HOSPITALIZED IN BIALYSTOK, POLAND

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Background:

Aseptic meningitis (AM), usually caused by non-polio enteroviruses, is an important cause of hospitalization in children and often create diagnostic and treatment challenges to clinicians.

Aims:

In this study we aimed to evaluate the etiology of childhood central nervous system (CNS) infections and compare laboratory test results, duration of hospital stays and the seasonality of AM caused by various pathogens during 4 consecutive years.

Methods:

The study is a retrospective analysis of medical records of children with AM hospitalized in the Department of Pediatric Infectious Diseases at the Medical University of Bialystok.

Results:

Non-polio enteroviral meningitis (EM) comprised the majority of cases (n=150, 66.1%). Tickborne CNS infections were identified in 57 (25.1%) children: tick-borne encephalitis (TBE) was diagnosed in 34 children (59.6%), and Lyme neuroboreliosis (LNB) in 23 children (40.4%). Remarkably, 18 (78.3%) LNB cases presented with facial nerve palsy. Sixteen different strains of enteroviruses were identified and the majority of infections occurred in the beginning of autumn. In 2015 *Echovirus 6* was predominant (n=22, 78.6%), while in 2016 most of the infections were caused by *Coxsackie B5*. EM was associated with a significantly shorter duration of hospital stay compared to other etiologies.

Conclusion:

Routine testing for enteroviruses in patients with aseptic meningitis might significantly shorten the duration of hospitalization. TBE remains an important cause of meningitis in endemic areas and should be considered a possible cause of meningitis. LNB should be suspected particularly in children with facial nerve palsy.

WSPID19-0319 E-Poster Presentations E-Poster discussion - Stream 4B: Epidemiology of Viral Infections

VIRAL ETIOLOGY AND CLINICAL CHARACTERISTICS OF PEDIATRIC ICU ADMISSIONS WITH SEVERE ACUTE RESPIRATORY ILLNESSES IN CENTRAL VIETNAM

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Background:

Acute lower respiratory infections (ALRIs) remain as the leading cause of childhood morbidity and mortality worldwide. Although viruses are known to play a major role in ALRIs, detailed etiological and clinical epidemiological information from developing nations are limited.

Aims:

We aim to investigate the viral etiology and clinical characteristics of pediatric ICU admissions with severe-ALRIs in south-central region of Vietnam.

Methods:

The pediatric ICU surveillance was initiated from June 2015 in Nha Trang, Vietnam. The current study covers the period of June2015-December2018. Demographic and clinical epidemiological information were collected from each enrollee. Respiratory virus screening was performed with multiplex PCR assays, covering RSV, InfA&B, hMPV, enterovirus etc. Enterovirus positive samples were further identified for genotype through nucleotide sequencing.

Results:

A total of 383 cases were admitted, and 376 (98.2%) agreed to be enrolled. The number of deaths was 25 (6.7%). Male proportion was 64.6%, and the median age was 5.1 months (IQR: 2.0-12.5). The enrolled children with malnutrition were 13.3% and underlying medical condition were 50.3%. 367 (97.6%) cases presented pneumonia, majority of which were severe-LRTIs. Enterovirus (n=118, 31%) and RSV (n=69, 18%) were the commonest viruses. Particularly, rhino-A&C counted as the major ones among Enteroviruses. Furthermore, Entero-D68 was detected in 9 (2.4%) cases.

Conclusion:

The results highlight the viral etiology and characteristics of pediatric ICU cases in south-central Vietnam. Male, malnutrition, and underlying medical condition may be the risk-factors for ICU admission. Etiologically, the wide genetic diversity of enterovirus implied its clinical significance among severe-LRTIs.

WSPID19-0393 E-Poster Presentations E-Poster discussion - Stream 4B: Epidemiology of Viral Infections

RELATIONSHIP BETWEEN REAL-TIME INFLUENZA SURVEILLANCE DATA BY AGE GROUP AND CIRCULATING VIRUS TYPE IN KAWASAKI-CITY, JAPAN, DURING EPIDEMICS FROM 2014/15 TO 2018/19

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Background:

In Japan, seasonal influenza epidemics occur every winter. We provide unique real-time influenza surveillance on our website in Kawasaki-city, and collect the number of cases on a daily basis, by type using rapid tests. Approximately 100 medical institutions voluntarily report the number of cases during epidemic periods every season using this system.

Aims:

To determine the epidemic pattern(s) of seasonal influenza.

Methods:

We examined real-time data by age group and laboratory-based surveillance data by circulating virus type/subtype during the epidemic periods from the 2014/15 to 2018/19 seasons.

Results:

Children aged 5-9 years comprised the greatest proportion of influenza cases every season. Although the 5-season average of this group was 19.1% for type A and 27.9% for type B, the proportion of type A cases was remarkably high in the first week of epidemic periods (27.6%). Especially in the A(H1N1)pdm09-dominated 2015/16 season, the proportion of children in the under 10 years age group (39.8%) was greater than those in the other 4 seasons (28.4%-32.5%). In the 2015/16 and 2016/17 seasons during which the B/Yamagata and B/Victoria lineages co-circulated, the proportions of the less than 15-year age group were 58.6% (2015/16) and 71.9% (2016/17), which were much greater than in the other 3 seasons (40.7%-45.5%).

Conclusion:

A rapid increase in the number of type A cases aged 5-9 years is a good indicator of a seasonal epidemic. The epidemic pattern of seasonal influenza and the pediatric incidence rate depend on the virus types/subtypes in the epidemic period.

WSPID19-0135 E-Poster Presentations E-Poster discussion - Steam 4B: Vaccine Coverage and Uptake II

INVESTIGATING INEQUALITY IN CHILDHOOD IMMUNIZATION COVERAGE IN ETHIOPIA USING LORENZ CURVE DERIVED GINI-COEFFICIENTS

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Background:

Inequitable access to routine childhood vaccines contributes to significant social gradients in health outcomes for developing countries. In Ethiopia, where high infant mortality and poor child health status are mainly attributable to preventable diseases, childhood immunization programs based on the WHO guidelines have been operational since 1988.

Aims:

We examined whether there was any evidence of socio-economic inequality in Ethiopian childhood vaccination coverage at three survey time-points of 2005, 2011 and 2016 and the extent of any trends or changes over the same time period.

Methods:

The distribution of childhood immunization coverage was analyzed according to economic status using Lorenz curve derived Gini-coefficients on Ethiopia's Demographic and Health Survey (EDHS) data from 2005, 2011 and 2016. Specifically, fully immunized status was analyzed according to household income quintile.

Results:

Gini-coefficients for fully immunized for the three survey years of 2005, 2011 and 2016 were 0.25, 0.29 and 0.24 respectively. While these values remain just within the margin of preferred equality status of below 0.3, they are at the margin of equality status and variable over time. Visual inspection of the Lorenz curve plots shows clear departures from perfect equality.

Conclusion:

While WHO decreed inequality 'alert levels' were not exceeded in any of the survey years analyzed, the clear and variable social gradient for fully vaccinated status merits close ongoing monitoring, given the risks of highly infectious childhood diseases. More generally, the

combined use of Gini-coefficients and Lorenz curve plots is a powerful tool to interrogate vaccination coverage variability by social group.

WSPID19-0238 E-Poster Presentations E-Poster discussion - Steam 4B: Vaccine Coverage and Uptake II

DELAYED VACCINATION IN CHILDREN IN A LOW-INCOME URBAN AREA IN DELHI: EVIDENCE FROM A RECORD-BASED STUDY

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Background:

Delayed vaccinations in children significantly increase the risk of Vaccine Preventable Diseases. However, despite the rapid increase in vaccination coverage among children in India in the past five years, there exists a lack of focus on the problem of delayed vaccinations.

Aims:

We conducted a record-based study to determine the rates of delayed vaccination among children reporting for routine immunization at an urban primary healthcare clinic in a low-income urban area in the North-East district of Delhi, India.

Methods:

We obtained information on all programme vaccinations received by children up-to two years of age during Jan-Mar' 2019 at the health clinic. Data in the clinic's vaccination register is entered manually by a nurse. From this data, we extracted the relevant variables. Delayed vaccination was defined as a delay of 30 or more days from the age recommended by India's national immunization schedule.

Results:

We analyzed a total of 560 vaccination cases in the children attending the immunization clinic. Delayed vaccination was present in 80 (14.3%) cases including 8 each for pentavalent 1st dose and fractional dose inactivated polio vaccine (fIPV) 1st dose, 31 for pentavalent 2nd dose, 35 each for pentavalent 3rd dose and fIPV 2nd dose, and 6 for the first dose of a measles containing vaccine. The proportion of delayed vaccination cases in female cases (15.9%) was more than in male cases (13.3%) (p = 0.39).

Conclusion:

Delayed vaccination constitutes a significant obstacle in India's quest for universal immunization coverage of children indicating the need for enhanced monitoring.

WSPID19-0364 E-Poster Presentations E-Poster discussion - Steam 4B: Vaccine Coverage and Uptake II

ENSURING INFANT IMMUNIZATION TIMELINESS IN NIGERIAN URBAN SLUMS THROUGH OLDER WOMEN'S PARTICIPATION

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Background:

Nigeria has an unacceptably high number of unimmunized infants, mostly from the lowest wealth quintile and contemporary strategies for ensuring immunization appear to be ineffective. Older women are traditionally saddled with the responsibility of infant welfare in Nigeria but they are unrecognized in the formal healthcare settings.

Aims:

To evaluate the impact of training and formal involvement of older women on timeliness of infant immunization in seven urban slum communities of Ibadan, Nigeria.

Methods:

Experimental study which utilized exploratory sequential mixed method design. Focus group discussions were conducted among older women (\geq 35 years) about the perceived roles they play in infant immunization. Results were used to design training materials. Pregnant womenolder women pairs (intervention group) and only pregnant women (control) were recruited from 12 ANC clinics. Older women were trained using the developed instrument. Immunization uptake of babies in both groups was compared at 8weeks of life. Data was analyzed using descriptive statistics and Chi square test at p<0.05.

Results:

The older women believed they have important roles to play in infant immunization timeliness. One hundred and ninety eight pregnant women (105 in intervention group and 93 controls), 96 older women and 202 babies (108 in intervention group and 94 controls) were recruited. All the babies in the intervention group were immunized but 2 in the control group were not. Significantly, babies in the intervention group had timely immunization (81.5% versus 57.4%).

Training of older women impacted positively on timely immunization uptake of infants in this study.
WSPID19-0102 E-Poster Presentations E-Poster discussion - Stream 1C: Global Child Health II

VAGINAL DELIVERY IS ASSOCIATED WITH PNEUMOCOCCAL CARRIAGE IN PCV10 UNVACCINATED VERY YOUNG FIJIAN INFANTS

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Background:

The case fatality rate of neonatal invasive pneumococcal disease (IPD) is high, especially in low-resource settings. Pneumococcal nasopharyngeal carriage, a prerequisite for IPD, is high in young infants in low-resource settings; and is responsible for horizontal transmission. However newborn case reports suggest vertical pneumococcal transmission may occur.

Aims:

To describe pneumococcal carriage by infant mode of delivery in young Fijian infants; and determine whether vaginal delivery is associated with carriage.

Methods:

Infants aged 5-8 weeks, unvaccinated with ten-valent pneumococcal conjugate vaccine (PCV10), participated in annual cross-sectional carriage surveys (2012-2015). Infant demographics, including mode of delivery, were recorded. Nasopharyngeal swabs were collected and processed using standard methods. Pneumococci were detected and quantified by *lytA* qPCR, with molecular serotyping by microarray.

Results:

Of the 2,006 participants, 86.8% were born vaginally. Compared with Caesarean delivery, infants born vaginally had a higher prevalence of overall (27.3% [95% CI 25.2–29.4] vs. 18.1% [95% CI 13.6–23.3], P=0.002), PCV10 (6.7% [95% CI 5.5–7.9] vs. 3.1% [95% CI 1.4-6.1] P=0.03), and non-PCV10 carriage (20.9% [95% CI 19.0–22.9] vs. 14.8 [95% CI 10.7–19.8], P=0.024). Fifty-one serotypes were identified; 27 were carried by vaginally delivered infants exclusively; 42 were not included in PCV10. Vaginal delivery was associated with overall (aOR 1.61 [95% CI 1.14–2.29; P=0.007]) and non-PCV10 (aOR 1.55 [95% CI 1.05–2.27; P=0.03]) carriage.

Conclusion:

Pneumococci maybe acquired vertically. However, differences in carriage by delivery mode maybe due to differential exposure to vaginal microbiota and antibiotics during Caesarean delivery on the infant microbiome. Young infants remain at risk of IPD despite PCV.

WSPID19-0118 E-Poster Presentations E-Poster discussion - Stream 1C: Global Child Health II

CHILDHOOD PNEUMONIA IN LUBUMBASHI: A STUDY OF 85 CASES

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Background:

Pneumonia is one of the leading causes of death for children under five years of age. In Lubumbashi- DRC, in 2015, they were the third leading cause of death for children under five.

Aims:

The objective of this work was to study its epidemiological and clinical characteristics in Lubumbashi.

Methods:

This is a retrospective descriptive survey conducted on the files of children hospitalized from 1 July 2015 to 30 June 2016 in the Pediatric Department of the University Clinic of Lubumbashi. The data were analyzed with the software epi info 3.5.4.

Results:

Seven hundred and eighty-one children were hospitalized, during which 85 cases of pneumonia were recorded, or 10.9%. The sex ratio was M / F 2. The average age was 2 years and 9 months. Children aged 0 to 2 years accounted for 62.5% of the workforce. The average time to consultation after symptom onset was 12.4 days. Vaccination status was correct for 15.3% of cases. The fever accounted for 94.4% of the reasons for consultation and cough 87.5%. The right parenchymatous opacities accounted for 55.8% of radiographic abnormalities and right pleural effusions 16.2%.

Conclusion:

With a frequency of 10.9% of cases of hospitalization, pneumonia is a real public health problem. A reliable diagnostic method of tuberculosis is necessary in the absence of the tuberculin test. The introduction of new antigens into the Expanded Program of Immunization, such as pneumococcal vaccine, would be necessary.

WSPID19-0241 E-Poster Presentations E-Poster discussion - Stream 1C: Global Child Health II

ANALYSIS OF CLINICAL FEATURES AND DIAGNOSIS OF FEVER OF UNKNOWN ORIGIN IN CHILDREN

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Background:

Diagnosis and treatment of fever of unknown origin (FUO) patients is alwalys difficult. There is currently no large research on the characterisric of FUO patients.

Aims:

To analyzing the disease categories and clinical features of FUO patients.

Methods:

FUO cases from anuary 2010 to December 2017 at Beijing Children's Hospital were reviewed. The clinical information were collected.

Results:

1288 FUO patients were included in this study, including 786 males (61.0%). The average age was 7±4.1 years old (1 month-17 years). The average time of fever was 6 weeks (2 weeks-2 years). There were 656 (50.9%) infectious diseases cases, 63 (4.9%) connective tissue diseases cases, 86 (6.7%) hematological diseases cases, 343 (26.6%) other pathogenies cases and 140 cases (10.9%) of undiagnosed. With the age increasing, the proportion of infectious diseases decreased from 73.53% to 44.21%. Connective tissue disease is common in patients over 3 years old. Hematological diseases were mainly distributed in 1-6 years old group. Among infectious diseases, bacterial was the common pathogen in the < 1-year old group. Viral was the common pathogen in patients over 1 year old. Mycoplasma is most common pathogen in preschool and school-age children. The most common bacterial (except tuberculosis) was streptococcus (26.3%). Among the fungal infections, the most pathogen were Cryptococcus (63.6%) and candida albicans(18.2%). EBV was the most common viru(79.5%).

Infectious diseases was the most common FUO patients. Connective tissue diseases are more common in children over 3 years old. The hematological diseases are mainly distributed in the age group of 1-6 years old.

WSPID19-0315 E-Poster Presentations E-Poster discussion - Stream 1C: Global Child Health II

THE IMPACT OF CLIMATE CHANGE ON INFECTIOUS DISEASES IN LOW- AND MIDDLE-INCOME COUNTRIES: A SYSTEMATIC REVIEW

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Background:

Climate change leads to the emergence and reemergence of certain infectious diseases, mostly in low- and middle-income countries (LMICs), and pose public health challenges. It is crucial to review existing knowledge on how climate change influences infectious diseases.

Aims:

This study aimed to provide an overview of the impact of climate change on infectious diseases in LMICs to suggest future directions in effectively preventing and controlling climate change-related burden of infectious diseases in vulnerable settings.

Methods:

A systematic review has been conducted following the PRISMA guidelines and using the major electronic databases. The inclusion criteria were studies in LMICs that examined the relationship between climate change and infectious diseases (including zoonosis). Key information extracted included study setting, disease types, and causes of the infectious diseases triggered by climate change.

Results:

A total of 45 studies were identified; 25 studies were conducted in Asia and 12 studies were in Africa. Dengue, malaria, and cholera were the three most common types of infectious diseases examined. The remaining types included diarrheal diseases, hemorrhagic fever with renal syndrome, Zika, and others. Extreme weather events (e.g., increased temperature, irregular patterns of rainfall, drought and humidity) and changes in ecological distribution (e.g., spatial distribution of disease vectors) were found to cause climate-driven infectious diseases.

Conclusion:

The findings from this review suggest that climate change affects infectious disease transmission via multiple pathways. This result provides guidance for public health

preparedness against infectious disease threats that consider meteorological variables and spatial variability in response to climate change.

WSPID19-0046 E-Poster Presentations E-Poster discussion - Stream 1C: Tropical and Parasitic Infections I

ANALYSIS OF HEART RATE VARIABILITY IN ADOLESCENTS WITH PRIMARY AND SECONDARY ENTEROBIASIS BEFORE AND AFTER A COURSE OF SPECIFIC THERAPY

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Background:

Helminthic invasion induces chronic stress in host, changes in the autonomic nervous system (ANS) and adaptive reactions of the whole organism, however, these host-parasite interactions are not well understood.

Aims:

to study the state of the ANS and adaptation-compensatory mechanisms in adolescents with different duration of pinworm invasion before and after the course of anthelmintic therapy.

Methods:

We examined 90 military cadets (boys aged 15–18 years): the 1st group included 35 cadets with a primary enterobiasis invasion; the 2nd group with re-invasion – 25 cadets; control group - 30 practically healthy cadets. The course of specific therapy was carried out with mebendazole. To assess the state of ANS we used the heart rate variability (HRV) method.

Results:

Adolescents with primary enterobiasis invasion had higher absolute and relative values of highfrequency component (HF) of HRV ($2314,9\pm314,7ms2$ and $55,6\pm3,1\%$), and adolescents with re-invasion – higher absolute and relative values of the very low-frequency component (VLF) of HRV ($1918,4\pm205,9ms2$ and $49,7\pm2,9\%$) than other groups of cadets (p<0,05). We observed normalization of HRV indicators up to the control group level in adolescents with primary enterobiasis invasion after the course of anthelmintic therapy. Whereas, high absolute and relative values of VLF-indicators in adolescents with re-invasion were preserved.

Conclusion:

Adolescents with primary enterobiasis have predominant parasympathetic regulation in cardiac rhythm modulation. Adolescents with re-invasion have excessive centralization of cardiac

rhythm control due to a disruption in the interaction between suprasegmental and segmental parts of the central ANS, which persists after the course of anthelmintic therapy.

WSPID19-0177 E-Poster Presentations E-Poster discussion - Stream 1C: Tropical and Parasitic Infections I

PREGNANCY SCREENING REDUCES INCIDENCE AND SEVERITY OF CONGENITAL TOXOPLASMOSIS IN BIALYSTOK, POLAND

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Background:

Poland

Screening and treatment for toxoplasmosis in pregnancy potentially reduces the risk of congenital disease in newborns. Maternal screening is recommended in Poland since 2010. Infection acquired during pregnancy can cause severe and disabling disease in the developing fetus or can be asymptomatic at birth possibly causing problems later in life. In the absence of typical signs and specific IgM/IgA antibodies in newborns, the diagnosis is based on the IgG response. This approach is hampered by passively acquired maternal antibodies.

Aims:

To evaluate impact of pregnancy screening on incidence of congenital toxoplasmosis and to analyse the rate of waning of maternal IgG antibodies against *T. gondii* in uninfected infants.

Methods:

During the period of 5 years before and 5 after the recommendation for screening we included infants with signs of congenital toxoplasmosis and infants born to women treated for toxoplasmosis.

Results:

After the recommendation was made, the number of infected infants decreased from 9 (1.8/year) to 4 (0.8/year). The number of infants born to women who received spiramycin during pregnancy increased from 29 (5.8/year) to 62 (12.4/year). 88/91 infants born to treated women were not infected, 2/91 were mildly symptomatic, and 1/91 was asymptomatic at birth, but developed symptoms later in life. Mothers of 10/13 infected and symptomatic infants were not screened in pregnancy. In uninfected infants, the median half-life of maternal antibodies was 30 days and in majority persisted less than 6 months.

Maternal screening for toxoplasmosis reduces incidence of congenital toxoplasmosis. Seroreversion in uninfected infants can be expected at 6 months.

WSPID19-0348 E-Poster Presentations E-Poster discussion - Stream 1C: Tropical and Parasitic Infections I

ANTI-PLASMODIAL ACTIVITY OF BIOSYNTHESIZED SILVER NANOPARTICLES USING LEAF EXTRACT OF SOLANUM ELAEAGNIFOLIUM AGAINST MALARIAL PARASITE, PLASMODIUM FALCIPARUM

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Background:

The utilization of various plant resources for the biosynthesis of metallic nanoparticles is called green nanotechnology, and it does not utilize any harmful chemical protocols. The present study reports the plant mediated synthesis of silver nanoparticles using the fruit extract of *Solanum elaeagnifolium*, which acts as a reducing and capping agent.

Aims:

The aim of the present study was to assess the anti-plasmodial activity of synthesized AgNPs against the malarial parasite, *Plasmodium falciparum*.

Methods:

The obtained nanoparticles were characterized using UV-visible spectroscopy; EDX (energydispersive X-ray), SEM (Scanning electron microscope), XRD (X-ray diffraction) and Fourier transform infrared (FTIR) analysis. The efficacy of green synthesized AgNPs at different concentrations (25, 50, 75 and 100µg/ml) were tested on *P. falciparum*

Results:

Synthesized AgNPs particles were confirmed by analysing the excitation of surface plasmon resonance (SPR) using UV–vis spectrophotometer at 420 nm. The scanning electron micrograph showed structures of spherical, cubic shape, and the size range was found to be 40–60 nm. The EDX spectra showed the purity of the material and the complete chemical composition of the synthesized AgNPs. The synthesized AgNPs showed significant anti-plasmodial activity when compared to aqueous leaf extract of *S. elaeagnifolium*. The maximum efficacy was observed in synthesized AgNPs against *P. falciparum* (IC50=100 µg/ml; 100%) respectively.

This method is considered as a new approach to control the malarial parasite, *P. flaciparam*. Therefore, this study provides report on the anti-plasmodial activity of synthesized AgNPs using *S. elaeagnifolium* against *P. falciparum*.

WSPID19-0391 E-Poster Presentations E-Poster discussion - Stream 1C: Tropical and Parasitic Infections I

ARTESUNATE COMBINATION WITH QUERCETIN: A PLAUSIBLE APPROACH TO TREAT MALARIA PARASITE

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Background:

Malaria is a parasitic disease that can be preventable and curable which remains a major killer of children under five years old, taking the life of a child every two minutes. The current regimen for treating Plasmodium falciparum induced malaria is based on artemisinin and its derivatives which were prescribed as an artemisinin combination therapy (ACT). However, the emergence of multidrug-resistant (MDR) strains of Plasmodium falciparum in various parts of the world.

Aims:

The aim of present work deals with the antimalarial potential of a new combination comprising of artemisinin derivative (Artesunate, ART) with Quercetin (QRT), a bioflavonoid to treat ACT induced Plasmodium falciparum resistance

Methods:

The *in-vitro* antimalaria studies were performed using two laboratory clones of P. falciparum, Pf3D7 (Chloroquine sensitive) and PfK1 (Chloroquine-resistant). The IC50 of drug/drug combinations were determined by fluorescence method

Results:

The IC50 value of ART and QRT for Pf3D7 were 0.96 ± 0.23 ng/ml 6.5 ±1.09 µg/ml and, respectively while these values for PfK1 were found to be 1.08 ± 0.14 ng/ml and 7.89 ± 0.91 µg/ml, respectively. In vitro interactions of these drugs shown an additive to synergetic antimalarial activity with mean sum fractional inhibitory concentrations (Σ FICs) of 1.09 ± 0.36 and 1.25 ± 0.24 against 3D7 and K1 strains respectively.

Conclusion:

From the results we found that the combination of ART-QRT, leading to significant synergistic effects which could become an additional novel effective combination therapy.

WSPID19-0224 E-Poster Presentations E-Poster discussion - Stream 2C: Antibacterial Vaccines III

BACTERIAL MENINGITIS IN NEPALESE CHILDREN ADMITTED TO A TERTIARY HOSPITAL WITH SUSPECTED INVASIVE BACTERIAL DISEASE BEFORE AND AFTER INTRODUCTION OF PNEUMOCOCCAL AND HAEMOPHILUS INFLUENZAE VACCINES

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Background:

Streptococcus pneumoniae (pneumococcus), *Haemophilus influenzae* type b (Hib) and *Neisseria meningitidis* (Nm) are the main causes of bacterial meningitis. Nepal introduced Hib vaccine in 2009 and pneumococcal vaccine (PCV10) in 2015.

Aims:

We examined these pathogens in children admitted at Patan Hospital, Nepal before and after introduction of these vaccines.

Methods:

From 2005-2018, data were collected from admitted children <14 years with suspected invasive bacterial disease. Any positive culture or >5 white blood cells in cerebrospinal fluid (CSF) were recorded and evaluated for pneumococcus, Hib, and Nm by culture/PCR and by antigen testing for Haemophilus (latex) and pneumococcus (BinaxNOW). Serotyping for pneumococcus was done by Quellung test.

Results:

CSF was sampled from 25% (4823/19360) of hospitalized children. Of these, 14% (691/4823) met WHO "probable bacterial meningitis" criteria. Discharge diagnosis as meningitis was found in 6.40% (1239/19360). Pneumococcus, the commonest CSF pathogen, was found in 4% (51/1239) of meningitis cases; only 39% (20/51) were culture-positive. Of 30 pneumococci

isolated in CSF/blood from meningitis cases, 40% (12/30) were PCV10 serotypes. In the 40 months since PCV10 was introduced, 10 CSF were Binax-positive, all except 1 from PCVunvaccinated children, while 0 were culture-positive, compared with 41 pneumococcal CSFpositive cases in the 124 months prior. Hib was identified in 1% (13/1239) of meningitisdiagnosed children; no cases were identified following Hib vaccine introduction. Neisseria was identified by culture/PCR in 10 children.

Conclusion:

Results show a decline in pneumococcal isolates from CSF. However ongoing monitoring of PCV10 impact on vaccine-type bacterial meningitis and serotype replacement is important.

WSPID19-0327 E-Poster Presentations E-Poster discussion - Stream 2C: Antibacterial Vaccines III

A REVIEW OF IMMUNOGENICITY AND SAFETY OF A MENINGOCOCCAL TETRAVALENT TETANUS TOXOID CONJUGATE VACCINE (MENACWY-TT) IN INFANTS AND TODDLERS

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Background:

The quadrivalent meningococcal conjugate vaccine MenACWY-TT is licensed to protect those aged \geq 6 weeks against meningococcal serogroups A, C, W, or Y.

Aims:

Establish immunogenicity and safety of MenACWY-TT administered with or without routine childhood vaccines in four clinical studies in infants and toddlers.

Methods:

In phase 2, 3, and 3b studies, infants 6–12 weeks (NCT01144663, NCT01340898) and toddlers 12–14 or 15 months (NCT01939158, NCT01994629) received MenACWY-TT on primary and booster schedules with or without routine childhood vaccines. Participants were from 12 countries across Asia, Australia, Europe, Africa, North America, and Latin America. Coadministered vaccines included a 10- or 13-valent pneumococcal polysaccharide conjugate vaccine and DTPa-IPV/Hib or DTPa-HBV-IPV/Hib. Immunogenicity was measured by serum bactericidal assays using rabbit complement (rSBA) to evaluate percentages of subjects achieving titers ≥1:8 one month after primary and booster doses. Safety was assessed.

Results:

Overall, 2845 infants and 1003 toddlers were vaccinated. Among infants given MenACWY-TT, ≥93.1% on 2+1 or 3+1 schedules and ≥93.9% on 3+1 or 1+1 schedules had rSBA titers ≥1:8 for all serogroups after last primary dose. In all groups, immune responses to the booster were robust. Among toddlers receiving 1 or 2 doses of MenACWY-TT, ≥89.0% and ≥98.0%, respectively, had rSBA titers ≥1:8 for all serogroups one month after last dose. Coadministration of MenACWY-TT with other vaccines did not affect immunogenicity of MenACWY-TT or other vaccines; all studies reported acceptable safety.

MenACWY-TT is immunogenic and safe in infants and toddlers with or without coadministration of routine childhood vaccinations.

WSPID19-0367 E-Poster Presentations E-Poster discussion - Stream 2C: Antibacterial Vaccines III

PNEUMOCOCCAL VACCINE COVERAGE OF CARRIERS IN CHILDREN 2-4 YEARS OLD IN IRBID AND MADABA CITIES IN JORDAN

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Background:

Pneumococcal carriers especially among younger children are the main disseminators and can cause serious invasive and non-invasive diseases.

Aims:

Check the pneumococcal carriage rate, resistance and serotype distribution from children 2-4 years old attending day care centers for two winter seasons from October 2017 till the end of march 2019 in Irbid and Madaba governorates in Jordan, and to find out the coverage of available and future pneumococcal vaccines.

Methods:

Nasopharyngeal swabs were taken from 1019 children from Irbid and Madaba cities in Jordan. Swabs were cultivated on Columbia blood agar with 5% sheep blood and incubated at 37°C for 24 hours. Suspected α -hemolytic colonies were tested for optochin sensitivity and bile solubility for identification. Isolates were analyzed for antimicrobial susceptibility according to CLSI standards and for serotyping using the Neufeld Quellung Method.

Results:

Total samples were 1019. Carriage rate for both seasons in Irbid was 29.6% and in Madaba was 37.9%. Resistance rate for Irbid and Madaba was as follows: Penicillin (86.3%, 94.4%), erythromycin (57.0%; 78.2%), clindamycin (30.8%; 47.2%), trimethoprim-sulfamethoxazole (68.6%; 86.6%) and tetracycline (45.7%; 51.9%), respectively. Predominant serotypes for Irbid were 19F (20.8%), 23F (12.0%), 6A (10.4%), and 6B (9.6%); whereas for Madaba were 19F (24.5%), 14 (7.4%), 6A (6.9%) and 23F (6.5%). Serotype coverage with the available vaccines for Irbid has reached 65.6% and 74% with the future PCV20; and for Madaba has reached 67.6% with PCV13 and 75% with the future PCV20.

Resistance and carriage rates reached an alarming rate and should be controlled by pneumococcal vaccination strategies

WSPID19-0470 E-Poster Presentations E-Poster discussion - Stream 2C: Antibacterial Vaccines III

PNEUMOCOCCAL CONJUGATE VACCINE (PCV) IMPACT ON SEROTYPE 3 INVASIVE PNEUMOCOCCAL DISEASE (IPD): A REVIEW OF SURVEILLANCE DATA

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Background:

Limited changes in serotype 3 IPD after a decade of 13-valent (PCV13) introduction into several pediatric national immunization programs (NIP) have raised questions about PCV13 effectiveness against this serotype.

Aims:

We compared settings in which the pediatric NIP uses PCV13 versus PCV10 (which does not contain serotype 3) - the null hypothesis being that if PCV13 provides no direct or indirect protection, PCV13 and PCV10 countries should have similar trends in serotype 3 disease occurrence post-vaccine introduction in children.

Methods:

Longitudinal surveillance data from seven countries were identified via two recently published reviews. We generated incidence rate ratios (IRRs) comparing serotype 3 IPD incidence each year post-PCV introduction with 2009 (the year before PCV13 or PCV10 were introduced in the NIP) and to all years before high-valent PCV introduction.

Results:

Countries using PCV10 showed a substantial linear increase of serotype 3 IPD among all age groups since the time of PCV10 introduction, whereas countries with a PCV13 NIP experienced a modest decline during the 3-4 years after vaccine introduction followed by an inflection upward in subsequent years. The difference in the averaged IRRs five years after the introduction of each vaccine (2015) were 113-204%, 218-221% and 200-216% for those <5, ≥65, and all ages, respectively.

These data suggest that PCV13 provides a certain degree of direct and indirect protection against serotype 3 at the population level and that direct adult vaccination with a serotype 3 containing vaccine is likely to provide substantial benefit in the context of a pediatric PCV NIP.

WSPID19-0045 E-Poster Presentations E-Poster discussion - Stream 2C: Tropical and Parasitic Infections II

ANALYSIS OF IMMUNE STATUS IN ADOLESCENTS WITH ENTROBIASIS INVASION

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Background:

The current data on the immunoreactivity of patients with enterobiasis are fragmentary and sometimes contradictory due to the fact that the study of this issue is carried out on patients of different ages with the presence of comorbidities.

Aims:

to study the immune status condition in adolescents with enterobiasis.

Methods:

We examined 90 military cadets (boys aged 15–18 years): 1st group included 35 cadets with a primary enterobiasis invasion; 2nd group with re-invasion – 25 cadets; control group – 30 practically healthy cadets without enterobiasis. Parameters of the immune status were studied using ELISA-test, Mancini method, the spectrophotometric method. The diagnosis of enterobiasis was established using adhesive tape (Graham method). To exclude other helminthiases we used Fulleborn enrichment method.

Results:

In patients with reinvasion, a reliable reduction was observed compared to the control group: in the number of T-lymphocytes (CD3+, 47±2% and 60,4±2%, p<0,001), T-helpers/inducers (CD4+, 21,7±3% and 41±2%, p<0,001), an increase in the content of T-suppressors/cytotoxic (CD8+, 29±4% and 19±0,9%, p<0,05) and undifferentiated forms of lymphocytes (0-cells, 45,5±3,5% and 29,5±1,4%, p<0,001) against the background of reduction in IgM (0,84±0,1 and 1,19±0,07 g/l, p<0,01), increase in phagocytic index (93,7±4,9% and 82,5±2,4%, p<0,05) with a simultaneous decrease in the phagocytosis completion index (0,85±0,08 and 1,16±0,04, p<0,01).

Fig. 1. Immune profile of adolescents with primary (A) and repeated enterobiasis invasion (B): IRI - immunoregulatory index; CIC - circulating immune complexes; PI - phagocytic index; PN - phagocytic number; IPC - phagocytosis completeness



Conclusion:

Decreased level of T-helpers - a significant factor of stable immunocomprometation and may further lead to reinvasion. Changes in the macrophage-phagocytic system indicate a decrease in the killing effect of phagocytic neutrophils in the peripheral blood against the background of their compensatory stress during repeated enterobiasis invasions.

WSPID19-0313 E-Poster Presentations E-Poster discussion - Stream 2C: Tropical and Parasitic Infections II

EPIDEMIOLOGY OF JAPANESE ENCEPHALITIS IN THE PHILIPPINES: UPDATED

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Background:

Japanese encephalitis (JE) is the most common childhood viral encephalitis in Asia. There is an increasing recognition of the burden and impact of the disease locally with the establishment of sentinel- and case-based surveillance.

Aims:

We aimed to update the epidemiology of JE to support the decision for vaccine introduction for the control of the disease in the country.

Methods:

We reviewed available data from the national disease surveillance system on acute encephalitis syndrome (AES) and acute meningitis-encephalitis syndrome (AMES) surveillance from January 1, 2014 to December 31, 2017. Cases were defined using surveillance definition set by WHO on AES and AMES.

Results:

Reporting in the case-based AES and AMES surveillance improved after 2014. There was an increase in reporting after 2014, from an average of 314 reported cases/year in 2011-2013, to 1,776 cases/year in 2015-2017 (470% increase using 2011-2013 as baseline). Laboratory-confirmed JE were found in 13.0% (n=891) of reported AES/AMES cases during 2011-2017. Almost half of the cases were children aged under 10 years. There was an increase in case reporting in July-September, which coincides with the wet season in the country. The majority of cases came from regions located in the northern part of the country. The cases from these regions comprise 55% (n=3,790) of all the suspected cases or 69% (n=623) of all the confirmed cases.

The results further confirm the endemicity of JE in the Philippines. The increased case reporting and laboratory identification has shown the high burden of the disease in the country.

WSPID19-0474 E-Poster Presentations E-Poster discussion - Stream 2C: Tropical and Parasitic Infections II

THE CLINICAL PROFILE AND OUTCOME OF CHILDREN WITH DENGUE ENCEPHALITIS AT A TERTIARY CHILDREN'S HOSPITAL IN THE PHILIPPINES: A RETROSPECTIVE STUDY FROM JANUARY 2011-JUNE 2017

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Background:

Dengue is hyper-endemic in the Philippines. One of its rare complications is dengue encephalitis, characterized by altered sensorium, elevated liver enzymes, and high denguespecific antibody titers. Previously known as non-neurotropic, dengue presents with an increasing incidence of neurologic manifestations.

Aims:

To describe the clinico-demographic profile and outcome of laboratory-confirmed dengue encephalitis patients admitted at a tertiary children's hospital in the Philippines from January 2011 to June 2017

Methods:

This retrospective study used purposive sampling to describe laboratory-confirmed dengue encephalitis cases aged 0-18 years at a tertiary children's hospital in the Philippines from January 2011 to June 2017. The clinico-demographic profiles and outcomes were collected using chart review. Variables were analyzed using descriptive statistics

Results:

Among 14 laboratory-confirmed cases, 57% were males from the National Capital Region, aged 3 days-15 years. From disease onset, neurological manifestations developed within 1-5 days, the most common being seizures (71%). All, except one, exhibited leukopenia and thrombocytopenia, and 57% had anaemia. Elevated liver enzymes, coagulation derangements, electrolyte, and glucose imbalances were noted. All were seropositive for dengue IgM, 5 exhibiting dengue IgM in CSF. EEG mostly showed generalized slowing. Neuroimaging were

normal or showed cerebral edema. Half of the patients recovered fully, 3 showing partial recovery from neurologic changes, and 3 manifested neurologic sequelae. One infant expired

Conclusion:

Dengue encephalitis is a rare complication of dengue. It should be considered in patients of all age groups living in an endemic country, presenting with fever with neurologic changes or elevated liver enzymes, with a risk for neurologic sequelae or death.

WSPID19-0210 E-Poster Viewing - 6-8 November Bacterial Infections: Community acquired bacterial infections (respiratory)

COMPARISON OF TUBERCULIN SKIN TEST RESPONSE IN TUBERCULOSIS CONTACT INVESTIGATION TO CHILDREN IMMUNIZED TWO MODALITIES OF NEONATAL BCG VACCINATION

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Background:

BCG vaccination is required for all neonates within 4 weeks from birth, as a part of NIP in Korea. Either of two modalities, the intradermal Copenhagen 1331 strain (ID-Copenhagen) or percutaneous multipuncture Tokyo 172 strain (PC-Tokyo) can be used. Tuberculin skin test (TST) responses may be variable according to the different BCG modalities.

Aims:

Therefore, TST responses among the data of nationwide tuberculosis (TB) contact investigation to children were reviewed.

Methods:

Data of children with under 5 years of age were selected in those of investigation in year of 2013-2015. In the event of a negative response for the first TST (TST1), a second TST (TST2) was performed. An induration \geq 10 mm on TST1 or an increase of \geq 6 mm on TST2 compared to the induration of TST1 was considered positive response.

Results:

The positive TST1 responses of ID-Copenhagen and PC-Tokyo group were 7.8% (8/103) and 17.3% (39/225), respectively. The positive conversions on TST2 among negative response of TST1 were 8.3% (6/72) and 25.6% (33/129), respectively. The overall positive rate of TST response for the PC-Tokyo was significantly higher (p=0.0011). The mean (\pm S.E.) induration size of TST1 and TST2 for the ID-Copenhagen were 1.95 \pm 0.33/1.83 \pm 0.39 mm, and 4.21 \pm 0.33/4.84 \pm 0.48 mm for the PC-Tokyo group (p< 0.0001/p< 0.0001).

The results of this study support the current opinion that the TST response of PC-Tokyo BCG is stronger than that of ID-Copenhagen BCG. As such, further investigations are warranted for updated criteria for a positive response according to the BCG modalities.

WSPID19-0193 E-Poster Viewing - 6-8 November Emerging and Zoonotic Infections

AN ENDEMIC DISEASE DETECTED WHILE CONSIDERING TUBERCULOSIS!

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Background:

Hydatid cyst disease; remains a serious public health problem in our country becasuse of the farming and can remain asymptomatic over the years. Although the most common organ is known as liver, lung involvement is common in children.

Aims:

When evaluating lung infections, especially in endemic countries, hydatid cyst disease should not be forgotten.

Methods:

Here in, we present a case who presented with pneumonia and diagnosed as hydatid cyst in the lung.

Results:

A healthy 15 years old male patient referred with fever, weight loss and difficulty in breathing to our clinic with the diagnosis of tuberculosis pneumoniae. There were decreased pulmonary sounds in the right hemithorax and pleural effusion on his chest radiography. Thoracic ultrasonography revealed pleural effusion(5 m), pleural thickening and septations in the right lung. Gram staining, Ehrlich-Ziehl-Neelsen staining, aerob-anaerob culture, tuberculosis culture were sent with pleural fluid sampling. Tuberculosis screening was performed. An indirect hemagglutination test for hydatid cyst disease was also studied in the patient who was known to have contact with dogs in childhood. Test result for hydatid cyst was positive. Albendazole was started, cystectomy and decortication were planned due to persistent fever and pleural thickening. The patient, who was asymptomatic after the operation and whose radiological findings regressed, was discharged with albendazole treatment.

Conclusion:

There is no consensus on the treatment process and method in this disease, which is reported to remain asymptomatic for many years in the literature. It should be noted that; public information is the most effective way for preventing hydatid cyst.

WSPID19-0296 E-Poster Viewing - 6-8 November Global Child Health

CLINICAL OUTCOMES AND RISKS FOR MORTALITY AMONG SERIOUS INFECTIONS IN ADOLESCENTS: A MULTICENTER, PROSPECTIVE, OBSERVATIONAL STUDY IN EUROPE (EUCLIDS PROJECT)

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Background:

Most of the studies on pediatric infections focused on children under 5 years of age. There is a huge knowledge gap on adolescents – a distinct patient group in transition into adult population.

Aims:

We describe the predictors of poor outcome in adolescent patients admitted for suspected infection.

Methods:

EUCLIDS is a prospective, multicenter, observational study conducted from July 2012 to December 2015 across 98 hospitals in 6 European countries enrolling pediatric patients with suspected infection. We analyzed the adolescents (10 to <18 years old) suspected to have infection

Results:

A total of 532 adolescents that were enrolled during the study period. 215 (40.4%) were diagnosed with sepsis and 317 (59.6%) with focal infection. Most of the adolescents were discharged with full recovery (480, 90.2%). Fifty-two (9.8%) were discharged with sequelae (52, 9.8%): 1 (0.2%) amputation, 6 (1.1%) skin graft, 3 (0.6%) with hearing loss. Thirteen (2.4%) adolescents died during the observation period. Adolescents admitted for lower respiratory tract infections (OR 7.272.138, 95% CI 3.978-13.293) and soft tissue infections (OR 31.168, 95% CI 14.826 – 65.525) are at high-risk for poor outcome. Adolescents with co-morbidities were (past severe infection OR 5.442, epilepsy OR 30.032, and cerebral palsy OR 19.884) and high C-reactive protein (OR 19.884, 95% CI 6.379 – 61.979) were also associated with poor outcome. All adolescent deaths were due to sepsis.

Conclusion:

The burden of infectious diseases in adolescents are largely unknown. This information is crucial on providing prognostication of adolescents suspected of infection and promoting prevention through vaccination.
WSPID19-0141 E-Poster Viewing - 6-8 November Vaccination: Antibacterial vaccines

ESTIMATING THE CLINICAL AND ECONOMIC IMPACT OF MAINTAINING USE OF 13-VALENT PNEUMOCOCCAL CONJUGATE VACCINE (PCV13) IN THE PHILIPPINES *S. Pugh*¹, *A. Costales*², *S. Patil*³, <u>*M. Wasserman*</u>⁴ ¹*Pfizer, Health Economics and Outcomes Research, Collegeville, USA* ²*Pfizer, Medical Affairs, Manila, Philippines*

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Background:

Pneumococcal conjugate vaccines (PCV) have demonstrated a remarkable public health impact around the world. In 2014, PCV13 was introduced in the Philippines Expanded Program on Immunization (EPI).

Aims:

This study evaluated the public health and economic impact of maintaining PCV13 compared to switching to the 10-valent pneumococcal conjugate vaccine (PCV10).

Methods:

A decision-analytic model was adapted to estimate health outcomes and associated health-care costs for each pneumococcal conjugate vaccination program. Disease incidence at the time of potential switch for invasive pneumococcal disease (IPD), pneumonia (PNE) and acute otitis media (AOM) was obtained from the published literature. For modeled PCV13 trends, incidence was adjusted by year based on serotype-specific estimates of years to 90% reduction according to a published meta-analysis. Finland serotype trends were used to model PCV10 clinical impact for all ages.

Results:

Continued use of PCV13 would result in significantly fewer cases of pneumococcal disease than switching to PCV10 over a 10-year time horizon (See Table 1). PCV13 was found to be cost-saving compared with PCV10 in the base case and PCV13 remained cost-effective across scenarios. Over a 5-year time horizon, 13,067 cases of IPD, 235,563 cases of AOM, 121,719 cases of pneumonia, and 2,168 deaths were estimated to be averted with PCV13, compared with PCV10.

Table 1: Total estimated cases and costs associated with PCV13 vs PCV10 in The Philippines over a 10 year period

| | PCV13 | PCV10 | Incremental |
|-----------------------------|------------------|------------------|-------------------|
| Number of Cases | | | |
| IPD | 38,898 | 80,154 | -41,257 |
| Pneumococcal PNE | 1,823,857 | 2,167,447 | -343,590 |
| AOM | 1,732,739 | 2,397,691 | -664,952 |
| Deaths | 14,688 | 21,636 | -6,948 |
| Quality Adjusted Life Years | 761,133,514 | 761,116,188 | 17,326 |
| Direct Medical Costs | | | |
| Vaccination | ₱ 41,845,586,364 | ₱ 37,316,336,496 | - ₱ 4,529,249,869 |
| IPD | ₽ 2,008,694,143 | ₱ 4,293,622,905 | -₱ 2,284,928,763 |
| Pneumococcal PNE | ₽ 17,108,810,570 | ₱ 19,833,233,537 | -₱ 2,724,422,967 |
| AOM | ₽ 463,063,146 | ₱633,322,617 | -₱ 170,259,471 |
| Total Costs | ₱ 61,426,154,224 | ₱ 62,076,515,556 | -₱ 650,361,332 |

Conclusion:

Continued use of PCV13 in The Philippines EPI is estimated to provide greater public health benefit and economic savings compared with switching to PCV10. It is important that policy makers consider potential implications of disease re-emergence of non-covered serotypes when considering modifications to vaccination strategies.

WSPID19-0322 E-Poster Viewing - 6-8 November Vaccination: Antibacterial vaccines

GLOBAL PUBLIC HEALTH IMPACT OF THE 13-VALENT PNEUMOCOCCAL CONJUGATE VACCINE (PCV13): 10-YEARS ON, HOW FAR HAVE WE COME?

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Background:

Pneumococcal disease represents a significant burden of vaccine preventable disease worldwide. Since 2000, pneumococcal conjugate vaccines have had an enormous public health impact in reducing morbidity and mortality, which was further enhanced following introduction of higher valent pneumococcal conjugate vaccines (PCVs) in 2009-2010.

Aims:

The objective of this study is to estimate the total number of cases and deaths averted in children <5 years old due to direct protection from PCV13 since its introduction.

Methods:

We estimated the number of pneumococcal disease cases and deaths prevented in children <5 years old vaccinated with PCV13 across 137 countries using a model informed by data from various sources. The number of infants vaccinated annually in each country was estimated using country-specific birth cohort and World Health Organization (WHO) coverage data, including only countries with PCV13 national immunization programs (NIPs) (i.e., no private market uptake). Incidence of invasive pneumococcal disease (IPD), pneumococcal pneumonia, otitis media (OM), and associated mortality in 0-5 year olds were derived from the published literature. Cases averted per vaccinated individual were calculated either from regional-specific post-vaccination incidence or vaccine efficacy, whichever was larger.

Results:

PCV13 vaccination in 137 countries was estimated to have prevented 142.4 million cases of pneumococcal disease and 493,000 deaths globally between 2010-2018 (Figure 1).

| | Total Cases | IPD Cases Averted | Pneumonia Cases Averted | OM Cases Averted | Deaths Averted |
|----------------------------|-------------|----------------------|----------------------------|---------------------|-------------------|
| Total Cases | 142,415,185 | 1,629,057 | 11,627,037 | 129,159,091 | 493,629 |
| Africa | 94,366,979 | 1,037,230 | 7,890,061 | 85,439,688 | 399,786 |
| Asia | 9,682,660 | 179,936 | 1,515,487 | 7,987,236 | 43,551 |
| Australasia & Oceania | 1,470,683 | 7,287 | 35,753 | 1,427,643 | 611 |
| Central & South America | 11,520,215 | 278,657 | 1,801,833 | 9,439,726 | 39,988 |
| Europe | 12,619,524 | 59,037 | 187,051 | 12,373,436 | 4,278 |
| North America | 12,755,124 | 66,910 | 196,851 | 12,491,362 | 5,416 |

Figure 1: Global and Regional Impact of PCV13 Vaccination in Infants

Conclusion:

The results of the model demonstrate the substantial public health impact since the introduction of PCV13 globally. Results are likely underestimated, given the exclusion of indirect effects—further highlighting the need for sustained PCV programs.

WSPID19-0152 E-Poster Viewing - 6-8 November Antibiotic Stewardship and Infection Control

ETIOLOGICAL SPECTRUM AND ANTIBIOTIC SENSITIVITY IN NEOANATAL SEPSIS.

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Background:

Neonatal Sepsis and antibiotic resistance is a major NICU problem.

Aims:

To determine the etiologic Organisms in Neonatal Sepsis and their antibiotic sensitivity.

Methods:

Blood cultures of all babies admitted in NICU during May 2017 till April 2019 were done. Culture positive patients were analysed for frequency of organisms and their antibiotic sensitivity.

Results:

Total 1259 pateints were admitted; 743(59.01%) male and 516(40.99%) female. Blood culture was positive in 79(6.27%). Gram positive organisms were identified in 36(45.57) patients while gram negative in 43(54.43%) patients. (Table 1 and 2). Penicillin, Ampicillin, Cephradine, Cefotaxime, Ceftazidime, Cefoperazone/Salbactum, Aztreonam and Meropenem showed very high resistance pattern. No organism was resistant to all antibiotics tested. Table 1: Gram+ive Organisms (n=36)

| | | Doxycycline | Chloramphenical | Vancomycin | Linezolid | Ciprofloxacin |
|--------------------------------------|----|-------------|-----------------|------------|------------|---------------|
| MRSA | 19 | 13(68,42%) | 14(77.77%) | 19(100%) | 16(84.21%) | 5(26.31%) |
| MRSE | 1 | 1(100%) | 1(100%) | 1(100%) | 1(100%) | 0(0%) |
| MSSA | 8 | 6(75%) | 5(62.5%) | 6(75%) | 8(100%) | 5(62.5%) |
| Coagulase Negative Staphylococcus | 1 | 1(100%) | 0(0%) | 1(100%) | 1(100%) | 1(100%) |
| Enterococcus spp | 7 | 2(28.57%) | 2(28.57%) | 3(42.86%) | 3(42.86%) | 43)1(14.28%) |
| Corynebacterium spp | 1 | 1(100%) | 0(0%) | 1(100%) | 1(100%) | 1(100%) |

Table 2: Gram Negative Organisms (n=43)

| | | Ciprofloxacin | Gentimicin | Meropenem | Colistin | Chloramphenical |
|------------------------|----|---------------|------------|-----------|------------|-----------------|
| Klebsiella | 12 | 2(16.66%) | 2(16.66%) | 3(25%) | 11(91.67%) | 2(16.66%) |
| Acinetobacter baumanni | 14 | 0(0%) | 0(0%) | 0(0%) | 14(100%) | 1(7.14%) |
| E.coli | 5 | 4(80%) | 3(60%) | 4(80%) | | 2(16.66%) |
| Enterobacter spp | 7 | 0(0%) | 0(0%) | 1(14.28%) | | 3(42.86%) |
| Proteus | 1 | 0(0%) | 0(0%) | 1(100%) | | 0(0%) |

| Pseudomonas | 2 | 1(50%) | 0(0%) | 2(100%) | 0(0%) |
|-------------|---|---------|-------|---------|-------|
| Serratia | 1 | 1(100%) | 0(0%) | 1(100%) | 0(0%) |

Conclusion:

Common organisms being Styphylococci, Acinitobacter, Klebsiella and E.Coli. Gram positive organisms showed sensitivity to vancomycin. Gram negative organisms were highly resistant. Some strains of Klebsiella and Acinitobacter were only sensitive of colomycin.

WSPID19-0425 E-Poster Viewing - 6-8 November Antibiotic Stewardship and Infection Control

SURVEILLANCE OF ANTIBIOTIC PRESCRIBING BY INFORMAL HEALTHCARE PROVIDERS: A "MISSING LINK" IN ONE-HEALTH APPROACH FOR ANTIBIOTIC STEWARDSHIP IN RURAL INDIA

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Background:

In low and high middle income countries, Informal health care providers (IHCPs) are predominant healthcare providers in rural India; who prescribe allopathic medicines, including antibiotics, without formal training. Surveillance of antibiotic prescription practices of IHCPs can provide crucial information in one-health approach.

Aims:

To explore the antibiotic prescription patterns of IHCPs for common illnesses in rural Ujjain, India, by repeated follow-ups.

Methods:

A repeated cross-sectional study. Prescriptions to outpatients by IHCPs were collected over 18 months (April 2014-September 2016) for six seasons (2-pre-monsoons, 2-monsoons, 1-post-monsoon, 1-winter), in customized prescription pads provided to them.

Results:

In total, 15,322 prescriptions for 323 different complaint combinations were analysed, of which 74% prescriptions included antibiotics and accounted for 15,472 antibiotics. Antibiotics were prescribed more frequently to children-81% than to adults-71% (odds ratio-2.20, p<0.001) and during the monsoon season-76%. Antibiotic prescribing for presenting complaints analysed was: injuries-89%, oral and dental problems-88%, fever-87%, upper respiratory tract infections-81%, skin infection-79%, gastro-intestinal disorders-60% and unspecified pain-30%. The majorities (95%) of antibiotics prescribed were broad spectrum and the most commonly prescribed were fluoroquinolones-31%, followed by penicillin with extended spectrum-27% and third-generation

cephalosporin-20%. Specially, ofloxacin-17.6%, amoxicillin-16.7%, cefotaxime-12%, ampicillin, cloxacillin combination-9.9%, ciprofloxacin-9.7% and gentamicin-9.5%, represented 75.4% of all antibiotics prescribed.

Conclusion:

Study results reveal high antibiotic prescribing for common illnesses in children and adults, mostly broad-spectrum antibiotic prescribing, that warrants immediate and coordinated efforts to reduce unnecessary antibiotic prescriptions by IHCPs and therefore forms an essential missing link in one-health approach for antibiotic stewardship.

WSPID19-0427 E-Poster Viewing - 6-8 November Antibiotic Stewardship and Infection Control

ETIOLOGY OF URINARY TRACT INFECTIONS AND ANTIMICROBIAL SUSCEPTIBILITY: A STUDY CONDUCTED ON A POPULATION OF CHILDREN HOSPITALIZED IN THE DEPARTMENT OF PEDIATRICS (1)

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Background:

The selection of an antimicrobial drug for empirical treatment of UTI is determined by the susceptibility of bacterial strains.

Aims:

Determination of etiology of urinary tract infections and pathogen drug susceptibilityin hospitalized children in two different years.

Methods:

We performed analyzes of 272 urine cultures from children (2013 and 2017). Diagnosis of UTI was confirmed in 88.6% (241/272): 90.5% (124/137) in 2013 and 86.7% (117/135) in 2017.

Results:

Escherichia coli was the most frequently isolated pathogen (93,5% in 2013 and 92,3% in 2017). ESBL (+) E. coli strains were found 6 patients. The E. coli APMC (+) strain was identified in one child. In other cases, the UTI etiological factors were: *Kl. oxytoca, Kl. pneumoniae, Ps. aeruginosa, Ent. aerogenes, Staph. epidermidis, Staph. saprophyticus, Pr. mirabilis and E. faecalis*, whose participation in the UTI pathogenesis were 0.8-3.2%. The total sensitivity for all pathogens to the 2nd generation cephalosporins were 92.0% in 2013 and 96.6% in 2017, for the first generation cephalosporins: 81.5% in 2013 and 96.6% in 2017, for amoxicillin with clavulanic acid: 84.7% in 2013 and 90.6% in 2017, for nitrofurantoin: 88.7% in 2013 and 96.6% in 2017, for trimethoprim/sulfamethoxazole: 69.3% in 2013 and 84.6% in 2017, for ampicillin: 44.3%)in 2013 and 50.4% in 2017.

Conclusion:

The most frequent etiological factor of UTI in children hospitalized in the pediatric ward remains E. coli. Antibiotic recommended in empiric therapy of UTI in children hospitalized in a pediatric ward should be cephalosporins, and in cases of lower urinary tract infections that do not require antibiotics, nitrofurantoin.

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WSPID19-0442 E-Poster Viewing - 6-8 November Antibiotic Stewardship and Infection Control

CARBAPENEM AND COLISTIN-RESISTANT BACTERIAL INTESTINAL CARRIAGE IN BANGLADESHI CHILDREN IN A COMMUNITY BASED STUDY

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Background:

Asymptomatic intestinal carriage of antibiotic-resistant bacteria (ARB) may precede infection, and colonized individuals may transmit ARBs to other community members and the environment. Though antibiotic-resistant *Enterobacteriaceae* infections are known to be increasing throughout Asia, the epidemiology of ARB intestinal colonization is not well characterized.

Aims:

To determine asymptomatic intestinal carbapenem and colistin-resistant bacterial colonization rates in children residing in urban and rural Bangladesh.

Methods:

As part of a larger study examining the relationships between environmental and human antimicrobial resistance, residents living (1) downstream from a wastewater-treatment plant in Dhaka, Bangladesh, (2) adjacent to a poultry farm in (rural) Matlab, Bangladesh, and (3) in a village setting (Matlab) free from agriculture and industry are being tested for ARB intestinal colonization. Subjects' stool specimens underwent preliminary screening for carbapenem-resistant bacteria with incubation on CHROMagar(TM) mSuperCARBA(TM) media, and for colistin-resistant bacteria on MacConkey agar plate supplemented with Colistin (2 µg/ml).

Results:

Of 75 recruited subjects, 36 are pediatric, with ages of two to seventeen years. Based on preliminary screening, 5.6% (2/36) are carbapenem-resistant bacteria carriers, and 55.6% (20/36) are colistin-resistant bacteria carriers. The two individuals who screened positive for carbapenem-resistant bacterial colonization are also putative carriers of colistin-resistant

bacteria. There were no clear associations for colonization based on age, gender, or residential setting.

Conclusion:

Preliminary phenotypic-based screening indicate children and adolescents living in diverse settings in Bangladesh may have significant rates of intestinal colonization with carbapenem-resistant, and particularly colistin-resistant, bacteria; these results suggest such ARBs may already be widespread in the community and environment.

WSPID19-0060 E-Poster Viewing - 6-8 November Antimicrobial Agents: Resistance, pharmacology, pharmacogenetics, PK - PD analysis, TDM

CEFTOLOZANE/TAZOBACTAM PHARMACOKINETICS IN CHILDREN WITH MULTI-DRUG RESISTANT (MDR) PSEUDOMONAS INFECTIONS

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Background:

PK data describing pediatric dosing of TOL/TAZ are limited.

Aims:

Characterize TOL/TAZ PK for 3 pediatric patients (pt): a 12 year old with cystic fibrosis, a 3 month old with complex cardiac condition and a 5 year old burn victim, all with pneumonia.

Methods:

Pt 1 received TOL/TAZ 2g/1g (41.8mg/kg TOL), Pt 2: 80mg/40mg (20mg/kg TOL), Pt 3: 701.3mg/350.7mg (27.2mg/kg TOL) every 8h. Samples were drawn after at least 6 doses.

Results:

Exposure was adequate in all patients with T>MIC ranging 41%-100%. Pts 1 and 3 had faster clearance than reported in adults (4.7L/h) and Pt 2 had slower clearance plus rapidly changing fluid status and renal function. TOL concentrations were available for Pts 1 and 2 and attained T>MIC \geq 90%. Concentrations reported as total drug. Free drug exposure is anticipated to be adequate assuming 20% protein binding. Pts 1 and 3 improved and were discharged, Pt 2 died from underlying disease state.

Table. TOL/TAZ serum concentrations

| | Patient 1 | Patient 2 | Patient 3 |
|--|---------------|--------------|--------------|
| Age, y | 12 | 0.25 | 5 |
| Weight, kg | 47.8 | 3.92 | 25.8 |
| MIC, mg/L | 2 | 0.5 | 4 |
| TOL, mg/kg per dose | 41.8 (2) | 20 (0.08) | 27.2 (0.701) |
| TOL Concentration, µg/ml (time post infusion, h) | | | |
| | 111.38 (0.08) | 15.31 (0.28) | 30.69 (1.13) |
| | 15.27 (2.95) | 10.84 (3.28) | 4.31 (3.16) |
| | 4.69 (5.08) | 8.19 (7.12) | 2.89 (4.42) |
| | 1.86 (7) | - | 1.52 (8.16) |
| TOL CL, L/h | 8.3 | 0.113 | 13.7 |
| TOL Vd, L/kg | 0.28 | 2.02 | 0.77 |
| TOL T>MIC, % | 81 | 100 | 41 |

Figure 1. Log-ceftolozane concentrations over time



nclusion:

While exposure was adequate, PK differences underscore the importance of further pediatric investigations.

WSPID19-0222 E-Poster Viewing - 6-8 November Antimicrobial Agents: Resistance, pharmacology, pharmacogenetics, PK - PD analysis, TDM

THE POTENTIAL OF FOSFOMYCIN TO TREAT MULTI-RESISTANT ORGANISMS: RESULTS OF A SAFETY ANALYSIS IN NEONATAL SEPSIS <u>P. Williams</u>¹, C. Obiero², R. Omollo³, E. Correira⁴, B. Nyaoke⁵, S. Murunga⁶, J. Thitiri⁷, S. Ellis⁴, S. Walker⁸, M. Sharland⁹, J. Berkley¹⁰ ¹The University of Oxford, KEMRI Wellcome Trust Research Facility, Kilifi, Kenya ²Kemri Wellcome Trust Research Institute, Paediatrics, Kilifi, Kenya ³Drugs for Neglected Diseases Initiative, Statistics, Nairobi, Kenya ⁴GARDP, Clinical Trials, Geneva, Switzerland ⁵GARDP, Clinical Trials, Nairobi, Kenya ⁶Kemri Wellcome Trust Research Institute, Statistics, Kilifi, Kenya ⁷Kemri Wellcome Trust Research Institute, Clinical Trials, Kilifi, Kenya ⁸UCL Statistics London, United Kingdom

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Background:

Antimicrobial resistance (AMR) is of increasing global concern, threatening to undermine recent progress in reducing child and neonatal mortality. Repurposing older antimicrobials is a prominent strategy to combat multidrug-resistant sepsis. Fosfomycin is a potential IV/oral agent, however, there are scarce data on safety & pharmacokinetics in the paediatric population.

Aims:

To assess the safety of IV & oral fosfomycin in neonates.

Methods:

We performed an unblinded randomised controlled trial on the safety of fosfomycin in 120 hospitalised neonates with clinical sepsis in Kilifi County Hospital, Kenya. Eligible participants were randomised 1:1 to receive either WHO standard-of-care antibiotics (ampicillin and gentamicin) *or* standard-of-care plus IV fosfomycin (for at least 48 hours) (100mg/kg/dose twice daily) followed by oral fosfomycin when clinically appropriate (100mg/kg/dose twice daily). Safety endpoints were plasma sodium concentration & adverse events (any grade) experienced during a 28-day follow-up period.

Results:

There was no significant difference between the two treatment arms with regards to plasma electrolyte levels, liver function or renal function at 3 time points (baseline, day 2 or day 7).

Adverse events (any grade) were less frequent in the group receiving fosfomycin. There were no adverse drug reactions attributed to fosfomycin.

Conclusion:

Fosfomycin is a safe antibiotic for the treatment of neonatal sepsis. Fosfomycin does not impact electrolytes, renal or liver function in neonates. This affordable antimicrobial may provide a promising option as a carbapenem-sparing regimen capable of achieving an excellent spectrum of activity against multi-resistant organisms in neonatal and paediatric sepsis.

WSPID19-0476 E-Poster Viewing - 6-8 November Antimicrobial Agents: Resistance, pharmacology, pharmacogenetics, PK - PD analysis, TDM

THE EVALUATION OF PEDIATRIC PATIENTS ASSOCIATED WITH HETEROGENOUS TEICOPLANIN INTERMEDIATE S. AUREUS AND RELATIONSHIP WITH PROGNOSIS

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Background:

The knowledge of vancomycin-intermediate *S.aureus*(VISA) isolates and heterogeneous VISA are very less as well as heterogenous teicoplanin intermediate *S. aureus*(hTISA) is unknown data in pediatric patients.

Aims:

This study aims to share the our experience of hTISA in pediatric patients.

Methods:

We retrospectively identified all children(0-18 years old)who were admitted to our hospital between June 2001 and 2016 and had clinical specimens that provided positive culture results for MRSA.64 isolates from 64 patients were included in this study.Broth microdilution method for teicoplanin MICs and Population analysis profiling(PAP)were performed for all MRSA isolates.Microplates containing serial concentrations of teicoplanin,ranging from 0.0125 to 64 mg/L.The isolates have a resistant subpopulation that grew at concentrations above the susceptible breakpoint(>8 mg/L)were accepted as hTISA(Fitzgibbon,M.M., A.S.Rossney and B.O'Connell,2007).

Results:

The median age was 29 months(range:1 to 206 months). The male-to-female ratio was 2.6:1. Of the patients,95.4% had at least one comorbidity. The most common underlying disease was malignancy (21.9%, n:14). The most frequently infection was bacteramia (50%,n:32). hTISA rate of MRSA isolates was 17% (n:11). Of the patients,45.5% (n:5) hTISA(+) and 32.1% (n:17) hTISA(-) died. Also 36.4% (n:4) hTISA(+) and 11.3% (n:6) hTISA(-) had MRSA associated death, during teicoplanin or vancomycin treatment in their hospital stay (p=0.06). These two hTISA(+) patients who died also had hVISA.

Conclusion:

Teicoplanin-susceptible-MRSA isolates may have hTISA subpopulation.After elimination of teicoplanin susceptible population with suitable antibiotic treatment,hTISA subpopulation may seem like such a cause for different clinic reflections also with hVISA,according to our data.However interpretation of this result is limited by the small number of cases and further large-scale studies are needed to highlight the significance of hTISA.

WSPID19-0491 E-Poster Viewing - 6-8 November Antimicrobial Agents: Resistance, pharmacology, pharmacogenetics, PK - PD analysis, TDM

COMBINATION OF BASIL ESSENTIAL OIL LEAVES (OCIMUM SANCTUM L.) AND FRANGIPANI FLOWERS (PLUMERIA ALBA) AS A HAND SANITIZER

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Background:

Hand washing is a simple matter, but it is important to prevent disease. Some people have replaced hand washing using hand sanitizers for practical reasons. To maintain halal food consumed, a non-alcoholic hand sanitizer is needed.

Aims:

This study aimed to examine the antibacterial activity and physical properties of the gel combination of essential oils of basil leaves and frangipani flowers as a hand sanitizer.

Methods:

Determination of the combination was done by using Design Expert® Version 11. Making essential oil gels were carried out standardly with carbopol excipients. The comparison taken was 4: 4 or 1: 1. The hand sanitizer gel that has been prepared, tested for its antibacterial activity using the finger print method. For testing physical properties include: test homogeneity, organoleptic, viscosity, pH, dispersion, adhesion.

Results:

Five combinations of essential oils all have antibacterial activity. But the best is the combination of essential oils of basil leaves and frangipani flowers with a ratio of 4: 0, 4: 4 (1: 1) and 1: 3. Making a gel with a ratio of essential oil 1: 1 shows a decrease in bacteria before and after washing hands. Formula with carbopol 0.6 g has the best physical properties because all tests meet the gel criteria and the best antibacterial activity (p < 0.05).

Conclusion:

The combination of essential oil of basil leaves (*Ocimum sanctum L.*) and frangipani flowers (*Plumeria alba*) has antibacterial activity as a hand sanitizer. The best antibacterial activity and physical properties at carbopol concentration of 0.6 g.

WSPID19-0138 E-Poster Viewing - 6-8 November Bacterial Infections: Bacteremia and endocarditis

RECORDING, ANALYSIS AND DISCUSSION OF ALL CHILDREN CASES WITH BACTEREMIA-SEPTICEMIA HOSPITALIZED IN OUR DEPARTMENT (6/4/2018 - 5/4/2019) V. Liakos¹, Z. Korka¹, <u>A. Anastasiou-Katsiardani</u>¹

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Background:

Bacteremia-septicemia is an extremely serious and potentially lethal condition, affecting all age groups. and its overall approach, especially in children, is rather challenging.

Aims:

To record all cases (n) hospitalized in our department during 2018, due to bacteremia or sepsis and raise Pediatricians' awareness of this serious issue.

Methods:

All data came from the electronic database of our hospital. Out of a total 1059 eligible records, 12 cases (1%) finally met our criteria. The study did not include neonates hospitalized in the Neonatal ICU.

Results:

Among the 12 patients, 9 were females and 3 males (3:1 ratio). Cardinal symptoms upon admission were fever (100%), vomiting (50%), localized pain (33%), diarrhea (25%) and tachypnea (8%). Pathogenic factors were isolated in 5 children (42%): Salmonella (N=2), E. Coli (N=1), Streptococcus pneumoniae (N=1) and Campylobacter Coli (N=1). All children were initiated on a double antibiotic regimen (cefotaxime and amikacin), except one who was transferred to the ICU Department in critical condition. Cure was the outcome upon discharge in all cases. Mean hospitalization was 9 days and mean treatment duration was 12 days.

Conclusion:

The medical staff of our Pediatric Department effectively managed all children hospitalized for bacteremia, in accordance with the current global guidelines. Key factors for the favorable outcome were both timely admission and proper evaluation during hospitalization. Our study revealed a female predominance that could possibly trigger multi-center studies in larger patient sample populations.

WSPID19-0173 E-Poster Viewing - 6-8 November Bacterial Infections: Bacteremia and endocarditis

STAPHYLOCOCCUS AUREUS BACTERAEMIC INFECTION IN BLOOD CULTURE OF CHILDREN ATTENDING DIFFERENT HOSPITALS IN NORTHERN NIGERIA

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Background:

Staphylococcus aureus is a significant pathogen in bloodstream infection with a huge financial burden in handling methicillin-resistant Staphylococcus aureus (MRSA) strains.

Aims:

We did a retrospective study to assess the MRSA strains from paediatric blood culture in northern Nigeria and the applicability of cefoxitin as a routine marker for mecA-mediated methicillin resistance.

Methods:

All the Staphylococcus aureus isolated from positive blood culture of children under five attending six hospitals in north-east and north-central Nigeria from October 2012 – November 2016 were retrieved for this study. Underlying conditions of the children with S. aureus were sepsis, cerebral meningitis, bronchial and congenital pneumonia, neonatal jaundice, hyperbilirubinemia, respiratory tract infection, anaemia, haemorrhagic disease of the newborn, perinatal asphyxia and retroviral disease. The methicillin susceptibility of the S. aureus strains was assessed using cefoxitin disc diffusion method.

Results:

A total of 57 S. aureus isolated amongst thirteen other Staphylococcus species were evaluated for methicillin resistance. The proportion of MRSA infection in the S. aureus strains was 7% during the study period while the methicillin-susceptible Staphylococcus aureus (MSSA) was 93%.

Conclusion:

The decreased incidence of MRSA from positive paediatric blood culture in northern Nigeria might be associated with low antimicrobial use in children. This should be considered in the clinical management of children when compared to the higher percentage of MRSA observed in some studies from other regions of Nigeria.

WSPID19-0264 E-Poster Viewing - 6-8 November Bacterial Infections: Bacteremia and endocarditis

SEVERE SALMONELLA POONA INFECTION IN A SECONDARY HOSPITAL IN BRUSSELS: ABOUT 2 CASES

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Background:

Salmonella is found mostly in raw or undercooked foods (poultry, meat, seafood and eggs). Domestic animals (birds and reptiles) can also transmit this infection. It particularly affects infants, but can be serious and even fatal.

Aims:

We report hereby 2 acute gastroenteritis cases associated with septicemia in 2 young kids.

Methods:

Two children aged 9 months and 2 years and 6 months respectively were admitted to the pediatric unit for pyrexia, diarrhea and general deterioration. The 2 children have clearly a picture of acute gastroenteritis. In the baby, the clinic is predominated by frequent diarrhea with high and prolonged fever while in the second child, it is characterized by chills and profound anemia (Hb 4.4 g/dL). The assessment revealed gastroenteritis complicated by *Salmonella poona* bacteremia for both. They recovered after 7 days of intravenous ceftriaxone follow by amoxicillin treatment

Results:

A detailed anamnesis permits to identify the source of contamination. In the case of the baby, it was associated with infant formula which is at the root of the problem and reported by the National Public Health Agency of France. In total, more than 30 confirmed cases were reported in France, Belgium and Luxembourg. For the second child, he would be in contact with domestic turtles during a recent return to Ghana, his country of origin.

Conclusion:

These two cases underline the importance of a network for foodborne disease surveillance by the local public authorities as well as preventive measures for domestic animals on patient education targeting families with young children.

WSPID19-0481 E-Poster Viewing - 6-8 November Bacterial Infections: Bacteremia and endocarditis

PEDIATRIC LEUCONOSTOC SPECIES-ASSOCIATED INFECTIVE ENDOCARDITIS: A CASE REPORT

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Background:

Leuconostoc species are highly fastidious, facultative anaerobic gram-positive cocci under Group D Enterococci, generally regarded as nonpathogenic in humans until several reported cases of *Leuconostoc* infections were presented in the literature. Rare cases of infective endocarditis (IE) associated with *Leuconostoc* have been described in adults but none so far in the pediatric age group.

Aims:

We describe a case of a native-valve IE in a 10-year old child with ventricular septal defect whose blood cultures reveal the growth of *Leuconostoc* species. This is the first reported case of pediatric *Leuconostoc* species-associated IE in the Philippines.

Methods:

Case report.

Results:

Our patient was initially brought in for fever and easy fatigability with physical findings consistent with a ventricular septal defect in failure. Initial 2-D echocardiogram revealed oscillating masses on the pulmonary and aortic valves. Two of the three blood cultures taken revealed the growth of *Leuconostoc* species. His condition stabilized after treatment with Ampicillin-sulbactam and was then slated for vegetation harvest with valve replacement and total correction of the septal defect.

Conclusion:

The identification and timely treatment of IE, especially in view of emerging implicated fastidious organisms such as *Leuconostoc*, is of key importance because of the significant morbidity and mortality associated with IE in children. The choice, dosage, and duration of antibiotic therapy are dependent upon the underlying causative agent. As such, proper method in culturing implicated organisms will have a high impact on the management of IE in children.

WSPID19-0329 E-Poster Viewing - 6-8 November Bacterial Infections: Bone and joint, skin and soft tissue infections

A ONE YEAR PROSPECTIVE STUDY FOR DETECTION OF KINGELLA KINGAE IN OSTEOARTICULAR INFECTIONS IN CHILDREN

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Background:

Kingella kingae(*K.kingae*) is a fastidious microorganism difficult to grow on routine culture. It may be the reason for the high proportion of negative culture results for osteoarticular children's specimens hospitalized for osteoarticular infection.

Aims:

The purpose of this prospective study isto describe the epidemiological, clinical, and laboratory profile of osteoaticular infections in children caused by *K.kingae* in Fez,Morocco.

Methods:

From December2016 to December2017, children admitted in the pediatric surgery department in HassanII University Hospital in Fez,Morocco with bone and joint infections were included. The bacterium was researched in osteoarticular specimens by culture in blood culture flasks, on blood agar and on chocolate agar. *K.kingae* was confirmed by *K.kingae*-specificPCR assay through researching the identification gene *cpn60* encoding the chaperone cpn60.

Results:

Between 100patients admitted in pediatric surgery department, 14 had an osteoarticular infection caused by *K.kingae*. It was detected by PCR(100%) but no strains were isolated by culture in joint punctures and surgical drainage in 79% and 21% respectively. The mean age was 34[1-98]months, sex-ratio2.5. The lower limbs were most commonly affected with knee, hip, femur and ankle location of64%, 29%, 21% and 7% respectively. Symptoms included pain(100%), fever(86%), swelling(79%), lameness(64%), patellar shock(43%) and inflammation(29%). The mean fever was 38.7[38-39.7]°C. Mean WCC was 13276(Range69-20490)mm3, CRP 90(Range20-191)mg/I and ESR 54(Range17–120)mm/hr. The ultrasound

showed a soft tissue infiltration(67%) and joint effusion(33%). Median hospitalization was 9.8days(3-31)days IVtherapy.

Conclusion:

The *K.kingae* rate was higher in septic arthritis and in male more than female. PCR is needed for detection of *K.kingae* and90% of reported cases occur in children under the age of 5years.

WSPID19-0494 E-Poster Viewing - 6-8 November Bacterial Infections: Bone and joint, skin and soft tissue infections

DEEP NECK INFECTIONS IN CHILDREN: A TEN-YEAR RETROSPECTIVE STUDY IN TURKEY

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Background:

Suppurative infections of the neck seem rarely in children with the use of antibiotic therapy, but can progress to serious complications if they are no treated immediately.

Aims:

The aim of this study was to evaluate the demographic features, clinical, microbiological and radiological findings, treatment responses and complications of deep neck infections in children.

Methods:

In this study, records of 21 patients with deep neck infection who admitted to Ege University Faculty of Medicine, Department of Pediatric Infectious Disease in Turkey between January 2009 and June 2018 were evaluated retrospectively.

Results:

Of the 21 patients with deep neck infection, 11 were (52,4%) male and 10 (47,6%) were female. The mean age was $10,1 \pm 4,5$ years (range 3-17 years). Tonsillopharyngitis was the most common cause of infection and present in 19 (90,5%) of the cases. Six of the patients (28,5%) had an identifiable organism in the drainage material. The most commonly isolated pathogen was *Streptococcus pyogenes* (n: 4 [19%]). *Streptococcus parasanguinis* was isolated in one case and *Streptococcus mitis* in another case. Fourteen patients were treated with medical and surgical therapy and 7 patients treated with only medical therapy. The most commonly used antibiotic was ampicillin-sulbactam (47.6%) and followed by cefotaxime + clindamycin (38.1%). The mean duration of treatment was $15,3 \pm 4,2$ days. Two patients had recurrence. One patient developed jugular vein thrombosis. None of the patients died.

Conclusion:

Deep neck infections need prompt diagnosis and management. If the patient develops abscess or phlegmon, surgical treatment may be neccessary in combination with antibiotics.

WSPID19-0529 E-Poster Viewing - 6-8 November Bacterial Infections: Bone and joint, skin and soft tissue infections

TEENAGER WITH VERTEBRAL OSTEOMYELITIS - CAN WE SUE THE LOO ?

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Background:

Infections due to *Salmonella* species in humans are generally reported to arise from ingestion of contaminated food or water, or direct animal contact.

Aims:

We report a case of vertebral osteomyelitis in a 13 year old girl associated in time with a sewage leak in the family bathroom.

Methods:

Case Report

Results:

A previously healthy 13 year old girl reported increasing flank pain for six weeks prior to presentation to Emergency Department with high fever (40 Degrees Celsius), chills and nausea. She had required regular analgesia and had withdrawn from sporting activity. The pain was said to have begun at the time of a sewage leak noted in the bathroom. She presented with lumbar paraspinal tenderness a normal white blood cell count and elevated C-reactive protein (152 mg/L).

Spinal X-rays revealed no abnormality. Investigations also suggested recent infection with Influenza B and *Mycoplasma pneumoniae* and she was initially treated with cefotaxime, flucloxacillin and azithromycin. MRI revealed L2-3 lumbar discitis, osteomyelitis and an epidural collection. Needle biopsy revealed *Salmonella enterica*, serotype Birkenhead. This organism was also found on blood culture but not stool culture.

Therapy was changed to ceftriaxone followed by oral ciprofloxacin for 6 months.

Conclusion:

We report a case of vertebral osteomyelitis due to *Salmonella* Birkenhead. This organism has caused outbreaks of gastro-enteritis in Australia, but osteomyelitis is rare. Although this infection occurred at the same time as a sewage leak, we do not have enough information to suggest this was a contributing factor, thus consider it premature "to rue the poo".
WSPID19-0325 E-Poster Viewing - 6-8 November Bacterial Infections: Community acquired bacterial infections (non-respiratory)

SALMONELLA I 4,[5],12:I:- OUTBREAK IN AN ELEMENTARY SCHOOL, SEOUL, REPUBLIC OF KOREA

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Background:

Between 10 and 21 April 2019, a fever and diarrhea outbreak occurred in an elementary school at Nowon-gu, Seoul, Korea.

Aims:

We conducted a field investigation and compared food exposure of 104 case students and 312 control students (aged 6 to 12) in order to identify the source of infection.

Methods:

We reviewed clinical features and laboratory findings through medical records.

Results:

Among 641 (574 students, 61 teachers, and 6 cooks), 260 showed likely illness. There were 106 cases identified (104 students and two teachers) by case definition. The attack rate was 19.7% (104 out of 527 interviewed students). Laboratory confirmed Salmonella I 4,[5],12:i:-infection. A total of 35 patients (34 elementary school students and one teacher) who visited Nowon Eulji Medical Center were analyzed. Of these, 20 were hospitalized and 15 were outpatients. The ratio of male to female is 3:2. Except a teacher, patients were 6 to 12 years old and mean age was 8.6. In hospitalized patients, 90% (18/20) had fever, while in outpatients, 60% (9/15) had fever. Diarrhea and abdominal pain were present in every patient. The average WBC value was 8100 and the CRP was 4.0 in hospitalized patients. Seven patients were treated with antibiotics for an average of 2.85 days during admission. In most patients, symptoms improved after 3 to 5 days of onset. Thorough investigation including food, utensil and environment failed to identify the source of infection.

Conclusion:

This outbreak suggests the risk of food or drink contamination with Salmonella, although the exact cause was not identified.

WSPID19-0371 E-Poster Viewing - 6-8 November Bacterial Infections: Community acquired bacterial infections (non-respiratory)

EMERGING TRENDS IN THE EPIDEMIOLOGY OF EPIDEMIC MENINGITIS IN NORTHWEST NIGERIA DURING 2016-2019

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Background:

Epidemic meningitis remains a cause of significant morbidity in the African meningitis belt.

Aims:

We report on findings from bacteriological and molecular surveillance of bacterial meningitis pathogens in northwest Nigeria over 3 epidemic seasons, 2017-2019.

Methods:

Cerebrospinal fluid (CSF) specimens collected from cases of suspected meningitis seen in health facilities in northwest Nigeria were processed at the IFAIN lab in Sokoto, Nigeria by standard culture and/or PCR. Real time PCR to detect *N. meningitidis* and *S. pneumoniae* and also to serotype/genotype *N. meningitidis* was done.

Results:

Majority (45%) of the 423 cases included in this report were in the age group 5-14 years. Predominant pathogens identified are shown in Tables 1 and 2 below.

| | 2017 n(%) | 2018 n(%) | 2019 n(%) |
|--------------------------|--------------|--------------|--------------|
| Total Tested | 443(100.0) | 160(100.0) | 80(100.0) |
| Bacteria Isolated | 114(25.7) | 34(21.3) | 11(13.8) |
| Neisseria meningitidis | 61/114(53.5) | 17/34(50.0) | 4/11(36.4) |
| Streptococcus spp. | 6/114(5.3) | 0 (0.0) | 0(0.0) |
| Enterobacteriaceae | 8/114(7.0) | | |
| Pseudomonas spp | 6/114(5.3) | 0(0.0) | 1/11(9.1) |
| Streptococcus pneumoniae | 2/114(2.2) | 5/34(14.7) | 1/11(9.1) |
| Acinetobacter | 15/114(15.0) | 0(0.0) | 1/11(9.1) |

Table 1: Bacterial pathogens identified by culture

Table 2: Pathogens Identified by PCR

| | 2017 n(%) | 2018 n(%) | 2019 n(%) |
|--------------------------|---------------|--------------|--------------|
| Total Tested | 210(100.0) | 133(100.0) | 80(100.0) |
| Bacteria identified | 142(67.6) | 83(62.4) | 33(41.2) |
| NmC | 136/142(95.7) | 61/83(73.5) | 21/33(63.6) |
| NmX | 1/142(0.7) | 14/83(16.9) | 4/33(12.1) |
| Non-groupable Nm | 8/142(5.6) | 3/83(3.6) | 3/33(9.1) |
| Staphylococcus aureus | 6/142(4.2) | 0(0.0) | 1/33(3.0) |
| Streptococcus pneumoniae | 2/142(1.4) | 5/83(6.0) | 5/33(15.2) |
| Haemophilus influenzae | 1/142(0.7) | 0(0.0) | 1/33(9.1) |

Conclusion:

Our results provide some indication of changes in the epidemiology of epidemic meningitis in northwest Nigeria, with possible implications for the effectiveness of vaccines currently in use. Continuous PCR-based surveillance is needed for better understanding of any changes in meningitis aetiology in high risk regions.

WSPID19-0421 E-Poster Viewing - 6-8 November Bacterial Infections: Community acquired bacterial infections (non-respiratory)

DIAGNOSIS AND MANAGEMENT OF MASTOIDITIS IN CHILDREN: AN ITALIAN RETROSPECTIVE ANALYSIS

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Background:

Mastoiditis usually affect young children. Antibiotic therapy and/or surgery are treatment of choice, but there is still no consensus.

Aims:

The primary aim was to review diagnosis, management and outcome of children admitted with acute mastoiditis. The secondary aim was to compare the outcomes of children with uncomplicated mastoiditis treated with short IV antimicrobial therapy (≤ 5 days) with PO switch versus prolonged antibiotic treatment (> 5 days).

Methods:

This is a multicentre retrospective study including all patients under 15 years of age admitted at two Italian Paediatric Hospital of Padua and Treviso, with ICD-9 discharge diagnosis code of mastoiditis, from 01/01/2008 to 31/12/2017.

Results:

157 children (median age 3.8 – 59.3 % males) were included. CT scans was used more often than MR (31.9% and 9.0%). 15.9% had surgery and 84.1% were treated with antibiotics alone. III generation cephalosporins were the most prescribed antibiotics (Table 1), with DOT and LOT

of 13.0 days of median.

| | | Padua (n = 95) | Treviso (n = 62) | Total (n = 157) |
|--------------------|-------------|-------------------|---------------------|--------------------|
| First line therapy | Ceftriaxone | 88 (92,63%) | 56 (90.32%) | 144 (91.72%) |
| | Ceftazidime | 7 (7,37%) | 5 (8,06%) | 12 (7,64%) |
| | Cefotaxime | 0 (0%) | 1 (1,61%) | 1 (0,64%) |

Over 40% of conservative patients received short IV therapy with no differences in outcomes compared to ones receiving prolonged therapy. Statistically significative differences between the two hospitals on cases severity, management, treatment duration, length of stay, and treatment failure were found (Table 2).

| Table 2 | | | |
|-------------------------------|--|---|----------|
| | Padua (n = 95) | Treviso $(n = 62)$ | P value |
| Colture from swab or drainage | 40 (42,10%) | 47 (75,8%) | < 0.0001 |
| IMAGING | | | |
| CT | 29 (30,52%) | 21 (33,87%) | 0.6601 |
| MR | 6 (6,32%) | 8 (12,9%) | 0.1568 |
| MANAGEMENT | | | |
| Antibiotic treatment (alone) | 85 (89,5%) | 47 (75,8%) | 0,0221 |
| Surgery | 1 mastoidectomy, 4 trans-tympanic drainage, 5 mastoidectomy with trans-tympanic drainage | 3 mastoidectomy with trans-tympanic drainage, 12 trans-tympanic drainage | 0,0425 |
| ANTIBIOTIC THERAPY | | | |
| DOT | 13.0 (5.0-38.0) | 14.0 (6.0-49.0) | 0.2094 |
| LOT | 13.0 (5.0-24.0) | 14.0 (6.0-31.0) | 0.0294 |
| LOS | 6.0 (5.0-21.0) | 7.0 (5.0-26.0) | 0.0024 |
| OUTCOMES | | | |
| Clinical complications | 6 (6,32%) | 6 (9,68%) | 0.1816 |
| TREATMENTS FAILURE | 3 (3,15%) | 7 (11,29%) | 0,0456 |

Conclusion:

A heterogeneous approach was observed in the use of imaging, in the management of children and in the length of therapy. Short IV therapy seems to be an effective and safe option. Common protocol for diagnosis and management represents an essential tool to standardize care.

WSPID19-0043 E-Poster Viewing - 6-8 November Bacterial Infections: Community acquired bacterial infections (respiratory)

MULTIDRUG RESISTANT PNEUMONIA IN CHILDREN, THE IMPORTANCE OF EARLY ADMISSION TO THE HOSPITAL. COMPLICATIONS DURING HOSPITALIZATION. A DIFFICULT CASE REPORT OF A 4.5-YEAR-OLD MALE

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Background:

Lobar pneumonia (LP) is a localized infection of the pulmonary parenchyma in which, one or more lobes are affected, usually by S.pneumoniae, with characteristic patchy infiltrates and air bronchogram in Chest X-ray.

Aims:

To describe a persistent multidrug resistant LP in a 4.5-year-old male (fully immunized for his age), requiring multi-day hospitalization and combined antimicrobial treatment.

Methods:

Information were gathered through our electronic-database.

Results:

The child was referred due to 6-day-fever(39.5°C), dry-cough and 2-day left-sided pleuritic chest pain under 3-days treatment with Amoxicillin/Clavulanic Acid (50mg/kg/24h). Clinical examination: decreased left lower lobe air-entry, Blood tests: CRP:59.96 mg/dl, WBC:13x109/L, normal blood gases, mantoux: 00mm of induration, Chest X-ray: left-side alveolar consolidation, Costophrenic Angles (CA) U/S: small pleural effusion. It was initially treated with Cefotaxime and despite its initial response to treatment, on the 4th day due to new onset of fever >40.1°C and persistent pleurodynia, Vancomycin was added and it was transferred to the regional tertiary hospital. New series of tests, CRP:8.25mg/dl, WBC:7.8x109/L, CA U/S: multiple septae-encapsulated liquid. Treatment was modified to Cefotaxime/Moxifloxacin, but although there were some days of apyrexia, due to relapsing fever, the treatment was changed to Linezolid. (Total duration of antibiotic treatment: 35days)

Conclusion:

This case report signifies that, although LP usually responds well to antibiotic treatment, there are cases of relapsing fever usually due to multiresistant strains. The early diagnosis and

treatment initiation as well as the proper dosage of the selected antibiotic, is critical in order to improve the outcome and minimize possible future negative effects for the young patients.

WSPID19-0056 E-Poster Viewing - 6-8 November Bacterial Infections: Community acquired bacterial infections (respiratory)

CHARACTERISATION OF CHILDREN HOSPITALISED WITH PNEUMONIA IN CENTRAL VIETNAM: A PROSPECTIVE STUDY

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Background:

Pneumonia is the most common reason for paediatric hospital admission in Vietnam.

Aims:

To document the potential value of using the World Health Organization (WHO) case management approach in Vietnam.

Methods:

We performed a prospective descriptive study of all children (2-59 months) admitted with 'pneumonia' (per clinician assessment) to the Da Nang Hospital for Women and Children to characterise their disease profile and assess risk factors for an adverse outcome. The disease profile was classified using WHO pneumonia criteria, with tachypnea or chest indrawing as defining clinical signs. Adverse outcome was defined as death, intensive care unit admission, tertiary care transfer or hospital stay >10 days.

Results:

Of 4,206 admissions, 1758 (41.8%) were classified as 'no pneumonia' using WHO criteria and only 252 (6.0%) met revised criteria for 'severe pneumonia'. The inpatient death rate was low (0.4% of admissions) with most deaths (11/16; 68.8%) occurring in the 'severe pneumonia' group. An adverse outcome was recorded in 18.7% of all admissions; 60.7% of the 'severe pneumonia' group. Children were hospitalised for a median of 7 days at an average cost of 253 USD per admission. Risk factors for adverse outcome included WHO classified 'severe pneumonia', age <1 year, low birth weight, previous recent admission with an acute respiratory

infection and recent tuberculosis exposure, while breastfeeding, day care attendance and preadmission antibiotic use were associated with reduced risk.

Conclusion:

Few hospital admissions met WHO criteria for 'severe pneumonia', suggesting potential unnecessary hospitalisation and use of intravenous antibiotics. Better characterisation of the underlying diagnosis requires careful consideration.

WSPID19-0092 E-Poster Viewing - 6-8 November Bacterial Infections: Community acquired bacterial infections (respiratory)

RISK FACTORS OF MULTI-DRUG RESISTANT TUBERCULOSIS AMONG PEDIATRIC PATIENTS: A RETROSPECTIVE COHORT STUDY

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Background:

Multiple Drug Resistant Tuberculosis (MDR –TB) is caused by bacteria that do not respond to, at least, isoniazid and rifampicin. The primary cause of developing MDR-TB is inappropriate treatment. Investigation of MDR - TB in children is limited, largely due to the well-known difficulties to isolate *Mycobacterium tuberculosis* from pediatric specimens.

Aims:

To determine the risk factors of pediatric patients diagnosed with Multiple Drug Resistant Tuberculosis.

Methods:

A Retrospective Cohort study conducted in a tertiary hospital in Quezon City, Batasan and Payatas Health Center from January 2011 to December 2016. A minimum cohort of 156 patients 0 – 18 years old, either bacteriologically or clinically diagnosed tuberculosis were included in the study. Patients whose significant data of their charts were missing were excluded in the analysis. The following were gathered a.) demographic profile and b.) clinical profile, history of exposure, results of laboratories, delay or previous treatment, and outcome.

Results:

12/162 had MDR – TB and 150/162 had Non MDR – TB. Results of univariate analysis showed that age and symptoms of weight loss, back pain, night sweats and fever had significant association with MDR - TB. Back pain (p=0.001; OR: 31.771; 95% CI: 3.801, 265.554) and fever (p=0.020; OR: 7.6587; 95% CI: 1.380, 42.494) were independent factors significantly related with MDR - TB.

Conclusion:

Age, weight loss, back pain, night sweats and fever had significant association with MDR - TB. Larger sample population and a prospective study is recommended to assess the epidemiologic data and further identify other possible risk factors for resistance.

WSPID19-0197 E-Poster Viewing - 6-8 November Bacterial Infections: Community acquired bacterial infections (respiratory)

CHILDREN BRONCHOPULMONAL DISEASES IN THE REPUBLIC OF CRIMEA. PROPERTIES OF CAUSATIVE AGENTS

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Background:

Diseases of the respiratory system remain one of the major challenges in the structure of the incidence of children and adolescents. A significant part of their acute forms are pneumonia and bronchitis, which are characterized by multi-etiology.

Aims:

We are investigating the frequency of bronchopulmonary diseases in the Republic of Crimea, gender characteristics and seasonality of bronchitis and pneumonia in children aged 3-18 years, the spectrum of pathogens and their antibiotic resistance in various groups from 2018 to 2019.

Methods:

We enrolled 63 children from the Simferopol region of the Republic of Crimea with acute bronchitis and pneumonia. The patients were divided into three age groups: 3-6 (I), 7-12 (II) and 13-18 (III) years. Sputum was followed by microbiological identification, sowing was performed on elective media, cultures were identified in a standard way. Isolates determined antibiotic susceptibility by the disk-diffusion method.

Results:

The causative agents of acute bronchitis in groups I-III were S. aureus, S. pneumoniae and S. pyogenes. 50-75% of isolates were sensitive to gentamicin, and from 5 to 75% to cephalosporins. MRSA accounted for 50% of the isolated cultures. The main pathogens of I-III groups of patients with pneumonia were K. pneumoniae, S. pyogenes and S. pneumonia, respectively, with different sensitivity to cephalosporins (50-83% of isolates).

Conclusion:

The spectrum of airway pathogens by age groups and their antibiotic resistance has been studied. The results will improve the use of antibiotics in the treatment of bronchitis and pneumonia in children of different age groups in this region.

WSPID19-0211 E-Poster Viewing - 6-8 November Bacterial Infections: Community acquired bacterial infections (respiratory)

MYCOBACTERIUM ABSCESSUS INFECTION: A CASE REPORT

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Background:

Atypical mycobacteria are rare causes of lower respiratory tract infection in children.

Aims:

In this article, a case who was diagnosed as mycobacterial abscessus infection, was presented.

Methods:

An 11-year-old male patient admitted to our hospital with complaints of weakness and cough. Physical examination revealed a decrease in weight gain and bilateral mid zone crackles. The blood examination revealed white blood cells: 13700, C-reactive protein: 33. On chest X-ray, there was an increase of opacity in the superior of right lower lobe (Figure 1). Chest CT scan revealed extensive consolidated infiltration areas as well as widespread frosted glass densities in both lower lobes (Figure 2). PPD was negative, acid-resistant bacteria was observed in one of the fasting gastric juice samples, TBC PCR was detected negative. The patient underwent diagnostic lung biopsy. In pathological evaluation, interstitial dense foamy histiocyte infiltration and granulomatous inflammation were detected.





Results:

Mycobacterium abscessus growth was detected in the tissue culture. Amikacin, linezolid, inhaled amikacin and clarithromycin treatment was started according to sensitivity results. Surgical consultation was requested due to lack of clinical and radiological improvement despite long-term antimycobacterial therapy. Surgical operation failed to be performed. In the chest CT scan of 111st day of treatment, some regression was observed in the consolidation areas previously observed, however, the lack of contrast enhancement observed at the central level of

the consolidation areas was more prominent (Figure



Conclusion:

Atypical mycobacterial agents should be kept in mind in patients with chronic lower respiratory infection who do not respond to appropriate antibiotic therapy.

WSPID19-0226 E-Poster Viewing - 6-8 November Bacterial Infections: Community acquired bacterial infections (respiratory)

SEVERE OBSTRUCTIVE SYNDROME IN A CHILD WITH MULTIPLE CONGENITAL MALFORMATIONS

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Background:

Children with multiple malformations are at high risk of respiratory infections. Careful diagnosis is needed to identify the cause of disease.

Aims:

Present a case of pneumonia in patient with multiple malformations.

Methods:

A boy with tetralogy of Fallot (TOF) revealed intrauterine. At birth 2080g, 45cm. After radical correction of TOF at 3 month, prolonged mechanical ventilation(MV) was required for 1,5 months. CT (3,5 month) - narrowing of the lower lobe bronchus. Post-inflammatory changes in right S2,6, left S6,8,9. At 5 month he was discharged without oxygen support, weight 4030g. Within 2 month he was sucking himself, he gained 2kg. At 7 month - hospitalized with respiratory failure, T 39C, tachycardia, increased blood pressure, severe bronchial obstruction. MV began. X-ray: right-sided upper lobe pneumonia. Streptococcus pneumoniae was isolated from upper airway. Despite MV 7 days, antibiotics, bronchodilatators, inhaled corticosteroids there was a long-term lack of positive dynamics. Bronchoscopy revealed stenosis of 1,2,6,9,10 segments of the left lung was revealed, fibrosis of 1,2,6,9,10 segments of the right.

Results:

At the oxigen therapy during sleep he was dischared with planned hospitalization in order to install a biodegrable stent.

Conclusion:

Pneumonia, MV led to the formation of irreversible changes in the lungs. Stenosis of the left main bronchus can be both inborn, and a postoperative fenomenon. Emphisema is an

unfavorable factor for the progression of intrstinal changes and prolonged course of the obstructive lung disease. Patient is required stenting of the left main bronchus.

WSPID19-0284 E-Poster Viewing - 6-8 November Bacterial Infections: Community acquired bacterial infections (respiratory)

IDENTIFICATION OF BORDETELLA PERTUSSIS IN AN UNIMMUNIZED INFANT: NEED RAISING OF AWARENESS AMONG HEALTH PROVIDERS

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Background:

Pertussis has globally resurged in recent years but still generally under-diagnosed. Infants and young children, particularly those who are not immunized, are the most vulnerable group with high risk for severe complication to death. Diagnosis is often delayed due to lack of clinical manifestation awareness and availability of diagnostic test

Aims:

This case report aims to increase awareness of the disease particularly in infant with cough

Methods:

A 10 months-old infant was admitted with shortness of breath, paroxysmal cough followed by vomiting, and low grade fever. The symptoms first occurred 2 weeks before admission as low grade fever, cough and coryza. The patient was first suspected to have malignancy since the result of CBC carried in a district hospital showed hemoglobin 7.2 g/dL, platelet count 1,091 cells/µL, WBC count 86.7 cells/µL with lymphocytes 69.1% and referred the patient to our hospital. The patient never been vaccinated. There were increased work of breathing, rhonchi on both basal lungs and crackles on the right lung. A nasopharyngeal swab *for* culture and PCR was taken. Chest radiography showed bilateral pneumonia with minimal pleural effusion. The patient was diagnosed as probable pertussis with complication of pneumonia. Antibiotics and other support treatment were administered according to the WHO guideline for pertussis.

Results:

No Bordetella pertusis was found on culture, but PCR came out positive therefore this case was confirmed as pertussis. Patient was discharged from the hospital after two weeks hospitalization.

Conclusion:

Paroxysmal cough, leukocytosis with lymphocyte predominant in infants should be recognized as symptoms of pertussis

WSPID19-0292 E-Poster Viewing - 6-8 November Bacterial Infections: Community acquired bacterial infections (respiratory)

PROSPECTIVE STUDY ON MACROLIDE RESPONSE AND EFFICIENCY OF DIAGNOSTIC METHOD TO MYCOPLASMA PNEUMONIAE PENUMONIA IN CHILDREN BETWEEN MSMP AND MRMP

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Background:

Mycoplasma pneumoniae (MP) is a most common cause of community acquired pneumonia. But during previous epidemics, resistance to macrolide was reported to be increased.

Aims:

Many studies discussed about this phenomenon, but there has been no prospective study including previous antibiotic history. This study was conducted to evaluate the response to macrolide and efficiency of diagnostic method of Mycoplasma pneumonia and investigated the clinical difference between MSMP and MRMP prospectively.

Methods:

We prospectively got the precise antibiotic history and observed the response to macrolide from patients who was diagnosed as radiological pneumonia from January 2017 to march 2019. If the fever resolved within 72 hours after macrolide, we defined it to macrolide sensitive (MSMP).

Results:

Macrolide sensitive *Mycoplasma pneumoniae* (MSMP) was 69.4% (n=25) and Macrolide unresponsive *Mycoplasma pneumonia* (MURMP) was 30.6% (n=11) and steroid responsive MP was 11.1% (n=4). 69.4% (n=25) was diagnosed with MP PCR from nasopharyngeal swab. 30.6% (n=11) was MP PCR negative and diagnosed with serology (IgM and IgG). Mean fever duration was 5.9 days in MSMP patients and 8.4 days in MURMP patients. Lactate dehydrogenase (LDH) and C-reactive protein (CRP) levels were significantly higher in MURMP patients than MSMP patients. Lobar type pneumonia was more related to MURMP compared to MSMP.

Conclusion:

Sensitivity of Mycoplasma PCR was about 70% and serology supported the diagnosis in 30%. Clinical MSMP was about 70%, higher than previous epidemics. LDH, CRP and lobar type pneumonia may be significant factors of MURMP. And correlation with MP PCR resistance to clinical response will be discussed

WSPID19-0318 E-Poster Viewing - 6-8 November Bacterial Infections: Community acquired bacterial infections (respiratory)

THE CAUSATIVE ROLE OF MYCOPLASMA PNEUMONIAE IN THE RESPIRATORY TRACT INFECTIONS ACCORDING TO AGE

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Background:

Recently, it has been reported that the prevalence of *Mycoplasma pneumoniae* in younger children is increasing.

Aims:

We studied the prevalence of *M. pneumoniae* in children with acute respiratory tract infections.

Methods:

Throat swab *M. pneumoniae* PCR and serum enzyme-linked immunosorbent assays (ELISA) IgM antibodies were performed. A positive rate of *M. pneumoniae* PCR and serum IgM were analyzed.

Results:

Among 1162 patients, PCR was positive in 232 cases (19.9%). In 355 children younger than 24 months, 32 cases (6.5%) were PCR positive. 10.2% of 24-36 months old children, 25.3% of 36-72 months old children, 36.8% of children aged more than 72 months were positive. Positive rates of early serum IgM were similar with the result of PCR.

Conclusion:

In our study M. pneumoniae was detected significantly more frequently in children \geq 5 years of age (36.8%) than in younger children. M. pneumoniae accounted for an increasing proportion of cases with increasing age. The continuous monitoring for change of prevalence in younger age is necessary.

WSPID19-0342 E-Poster Viewing - 6-8 November Bacterial Infections: Community acquired bacterial infections (respiratory)

ATYPICAL HEMOLYTIC UREMIC SYNDROME SECONDARY TO PNEUMOCOCCAL PNEUMONIA: THE THREE FACES OF A DISEASE

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Background:

Streptococcus pneumoniae (Spn) has been associated with hemolytic uremic syndrome (SpnHUS), which is a severe and unusual disease form in childhood.

Aims:

We describe three distinct cases of HUS in patients with invasive pneumococcal pneumonia.

Methods:

Results:

Patient 1 – a healthy 8-year-old boy, admitted with cough, fever and dyspnea for 4 days. Pneumonia with pleural effusion was diagnosed. Eight days after onset of respiratory symptoms the patient developed cardiorespiratory distress, septic shock and acute renal insufficiency (BUN=170mg/dl; Creat=2.5mg/dl). Anemia (Hb=9.5g/dl), thrombocytopenia (31000/µl) and normal serum C3/C4 levels suggested HUS. Peritoneal dialysis was necessary for 7 days. *Spn* serotype 3 was identified in blood culture.

Patient 2 – a healthy 9-month-old girl was admitted with cough and dyspnea for 2 days. Acute bronchiolitis with secondary pneumonia was diagnosed. Vomiting, diarrhea, oliguria (BUN=110mg/dl; Creat=1.9mg/dl), anemia (Hb=8.5g/dl) and thrombocytopenia (39000 platelets/µl) developed along following days. Serum C3/C4 levels were normal. Peritoneal dialysis was necessary for 8 days. *Spn* serotype 19A was identified in blood culture. Patient 3 – A healthy 23-month-old girl, admitted with cough, fever and vomiting for 4 days. Pneumonia with pleural effusion was diagnosed. Five days after onset of respiratory symptoms the patient developed cardiorespiratory distress and septic shock, and slight increase in BUN (78mg/dl). Additional anemia (Hb=7.5g/dl), and thrombocytopenia (101000/µl) and normal serum C3/C4 levels corroborated with HUS. Dialysis was not required. *Spn* was isolated by RT-PCR in pleural effusion.

Conclusion:

SpnHUS has spectral renal impairment and potentially serious outcomes. Vaccination and early disease managing are crucial for prevention and favorable outcomes.

WSPID19-0492 E-Poster Viewing - 6-8 November Bacterial Infections: Community acquired bacterial infections (respiratory)

CHARACTERISTICS OF CHILDREN WITH TUBERCULOSIS IN TWO COMMUNITIES IN THE PHILIPPINES

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Background:

Tuberculosis (TB) remains a major public health problem worldwide. Of interest are vulnerable groups including children who have a higher risk of TB complications.

Aims:

To describe the characteristics of children under 15 years with presumptive and diagnosed TB in two communities in the Philippines.

Methods:

In a prospective field trial conducted in two communities in the Philippines: San Juan, Batangas and Los Baños, Laguna, children under 15 years with presumptive TB were enrolled and followed up. Baseline demographic, social, nutritional and clinical characteristics were compared between those who were diagnosed with TB disease and those who were assessed not to have TB.

Results:

Among 1,017 enrolled children with presumptive TB, 999 (98%) were followed up until diagnosis. 47% of presumptive TB cases were children aged 4 years and younger, 55% were males and 93% had a BCG scar. Out of 999 children, 412 (41.2%) were diagnosed with TB disease, 18 (1.8%) had latent TB infection (LTBI) and 587 (58.8%) were assessed as not TB or TB exposure. Only 11 (2.7%) cases of all TB disease were bacteriologically confirmed, 3 were rifampicin resistant by Xpert MTB/RIF. Children diagnosed with TB disease were more likely to be younger, females and wasted compared to children who had no TB. Among children with TB disease, history of cough, weight loss and fever were the most common presenting symptoms.

Conclusion:

In our study, the majority of children with active TB were clinically diagnosed, aged under 5 years, females and were wasted or severely wasted.

WSPID19-0038 E-Poster Viewing - 6-8 November Bacterial Infections: Neonatal infections

ADJUANT USE OF GRANULOCYTE COLONY STIMULATING FACTOR IN PRETERM BABIES WITH SEPSIS:A RANDOMISED CONTROLLED TRIAL

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Background:

Neonatal infections are the major cause of death in developing countries. The severity and mortality increases with the degree of Neutropenia.

Aims:

To evaluate the role of human recombinant granulocyte colony-stimulating factor (GCSF) on mortality in preterm neonates with sepsis and neutropenia

Methods:

A prospective, randomized, double-blinded, placebo-controlled trial of GCSF on preterm neonates Gestational age (GA) <35 weeks with blood culture positive sepsis or clinical sepsis and absolute neutrophil count (ANC) of <1500 cells/mm3 was conducted over a duration of one year in a teritiary care neonatal center in south India.Mortality, duration of Neonatal Intensive Care Unit (NICU) stay and Hospital stay, hematological parameters (ANC, platelet count, and total leukocyte count) were compared. The GCSF group (n=189) received GCSF intravenously in single daily dose of 10 µg/kg/day in a 5% dextrose solution over 60 minutes for five consecutive days, while the control group (n=190) received placebo of an equivalent volume of 5% dextrose.

Results:

Baseline demographic profile among the two groups was comparable. Mortality rate in the GCSF group was significantly lower than in the control group (4% vs. 25%; *P*-0.04). By third day of treatment, ANC in the GCSF group was significantly higher (3106 ±453) compared to 1994±660 in the control group, with (*P*-0.01). Duration of NICU stay also decreased significantly in the GCSF group however the hospital duration did not decrease significantly

Conclusion:

GCSF in preterms with septicemia and neutropenia resulted lower mortality rates. The total cost incurred in treating the neonates decreased in intervention group since the hospital stay decreased

WSPID19-0063 E-Poster Viewing - 6-8 November Bacterial Infections: Neonatal infections

NEONATAL STENOTROPHOMONAS MALTOPHILIA INFECTION IN 3 CASES

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Background:

Stenotrophomonas Maltophilia (SM) is a gram-negative Bacillus, opportunist naturally resistant to cephalosporins and Carbapeneas.

Aims:

to describe this rare infection in newborn, with a literature revue

Methods:

We report 3 cases of nosocomial infection in STENOTROPHOMONAS MALTOPHILIA in 3 neonates hospitalized in neonatal resuscitation at Mohammed VI hospital. of Marrakech.

Results:

Case 1: 3-day-old female newborn who had a respiratory tract infection treated with ciprofloxacin and complicated with fatal septic shock. Case 2: 11-day-old male newborn presented with empyema and cerebral abscesses treated successfully by Amikacin-Chloramphenicol. Case 3: newborn male, admitted to second day of life in the neonatal resuscitation unit for perinatal asphyxia SARNAT III associated with respiratory tract infection successfully treated by Amikacin - ceftazidime. The 3 cases were confirmed by blood culture.

Conclusion:

In the multidrug resistance of this germ to antibiotics the choice of treatment is sometimes difficult. These 3 cases of S.M. infections are reminiscent of the emergence of this germ and its natural multidrug resistance.

WSPID19-0064 E-Poster Viewing - 6-8 November Bacterial Infections: Neonatal infections

NOSOCOMIAL INFECTION IN PSEUDOMONAS PUTIDA: ABOUT A CASE

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Background:

Pseudomonas putida is a bacterium gram negative, strictly aerobic; in the form of straight or bent sticks. It causes severe nosocomial infections in patients with immunocompromised or invasive devices.

Aims:

To expose this infection in newborn and a literature revue

Methods:

In this work we report 1 case of Pseudomonas putida infection in the neonatal resuscitation service, University Hospital Mohamed VI, Marrakech Morocco

Results:

Clinical observation: New born female 1st twin; admitted on the first day of her birth for neonatal respiratory distress and a prematurity of 32.6SA with an infectious history positive in the mother made of premature rupture of the membranes more than 24 hours. Hemoculture had isolated a Pseudomonas putida strain susceptible to ceftazidim, colistin, imipenem and amikacin resistant to amoxicilin and ciprofloxacin. The treatment in our patient was based on the association of imipenem and amikacin with a favorable evolution.

Conclusion:

Pseudomonas putida germe quite virulent responsible for severe nosocomial infections; this requires early introduction of appropriate antibiotic therapy in order to limit the emergence of resistant strains.

WSPID19-0101 E-Poster Viewing - 6-8 November Bacterial Infections: Neonatal infections

CHARACTERISTIC FINDINGS OF NEONATALLY CONGENITAL SYPHILIS: TWO CASES REPORT

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Background:

Vertically transmitted syphilis is particularly concerning during pregnancy due to the risk of miscarriage, stillbirth, premature. The newborn of congenital syphilis may result in neonatal mortality or significant complications of multi organs involvement. However, most of live-born neonates with congenital syphilis do not exhibit specific symptoms leading to misdiagnosis and delayed specific therapy for such infection.

Aims:

(1) describe characteristic findings found on two premature cases of congenital syphilis and(2) share our experiences in the management of neonatally congenital syphilis.

Methods:

Two neonate patients admitted to NICU with clinical features and serology confirmative of Treponema pallidum were enrolled in this study over the period of October to November 2017.

Results:

Both premature neonates of congenital syphilis administrated to Neonatal Intensive Care Unit of Khanh Hoa General Hospital over the period of October to November 2017 demonstrated clinical and laboratory presentations of macular purpura, bullous lesion in palms and soles, ascites, splenohepatomegaly, heamatology dysfunction and elevated of liver functions. Moreover, hydrous, cardiomegaly and abnormal cerebrospinal fluid were also found on case 2. As a result, case 1 was confirmed congenital syphilis until day eleven of hospitalization and alive; whereas case 2 deceased three days later in spite of prompt resuscitation and treatment.

Conclusion:

Neonatally congenital syphilis should be considered if child was born with maculopapular, ascites or hydrops fetalis, splenohepatomegaly, disturbance of heamatology and liver functions. Pregnant women should be screened for syphilis as our concerning.
WSPID19-0472 E-Poster Viewing - 6-8 November Bacterial Infections: Neonatal infections

OUTCOME OF NEONATES WITH SEPSIS LIKE ILLNESS ADMITTED AT A TERTIARY HOSPITAL IN NORTH WESTERN TANZANIA

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Background:

Sepsis like illness is the major cause of admission in neonatal units, and a leading cause of mortality. While majority of studies focused on bacterial sepsis(culture positive), there is scanty data on culture negative sepsis like illness.

Aims:

This study was conducted in a neonatal unit in a resource limited setting in order to compare the course of illness and six weeks outcome of neonates with culture positve and negative neonates.

Methods:

between February and December 2018 we conducted a Cohort study of admitted full term neonates with signs and symptoms of sepsis as per WHO working group. The neonates were managed according to the local guidelines, blood culture were taken and processed according to standard, together with other clinical and lab parameters were analyzed to identify the clinical characteristics and outcomes. Multivariate logistic regression was used to identify independent risk factors for mortality in culture positive and negative neonates with sepsis like illness

Results:

348 neonates were included in analyses, 32% with positive-cultures. In-hospital mortality were 13.7% and 14.2% in culture positive and negative respectively. Neonates in culture positive group presented with convulsions 15% vs 5%, p=0.03 and in the culture negative group presented with hyperbilirubiemia: 25% v 5%, p=0.05. post hospital m mortality of 4% was observed in the culture positive group and none in culture negative group.

Culture negative and positive neonates had similar in hospital mortality. convulsions were associated with mortality in culture positive neonates while for culture negative neonates mortality was associated with respiratory distress and hyperbilirubinemia.

WSPID19-0498 E-Poster Viewing - 6-8 November Bacterial Infections: Neonatal infections

AN OUTBREAK OF PANTOEA SPECIE 3 IN A SPECIAL CARE BABY UNIT IN NIGERIA: CLINICAL PICTURE AND OUTCOMES

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Background:

Pantoea specie 3 is an uncommon cause of serious infections in newborns.

Aims:

We describe the clinical features and outcomes of an outbreak of Pantoea specie 3 in the Special Care Baby Unit (SCBU), University of Abuja Teaching Hospital in August 2017.

Methods:

All newborns admitted to the SCBU on account of suspected sepsis had blood culture samples collected as part of a newborn sepsis surveillance program between January-December 2017. Blood samples were processed using the Bactec® 9050 System and positive samples subjected to standard microbiological methods. All admitted cases were followed-up until discharge from hospital.

Results:

Overall, a pathogen was identified in 56/597 (9.4 %) samples processed in 2017, of which 7/56 (12.5 %) were pantoea specie 3. All 7 pantoea cases were found in August 2017. Of six pantoea cases for whom clinical information was available, median (IQR) gestational age, birth weight and age-at-admission were 32(2) weeks, 1.43(0.70)kg and 1(3) days respectively. The most common clinical features were hypothermia (6/6), respiratory distress (6/6), abdominal distension with reduced bowel sounds (4/6), hypoglycemia (4/6) and gastrointestinal bleeding (3/6). Fatality was higher among the pantoea cases than for all other sepsis admissions (4/6 versus 13/50; p=0.04). All pantoea isolates were sensitive to Ciprofloxacin, Gentamycin and Imipenem while 6/7 (85.7 %) were resistant to Ceftriazone, Cefuroxime, Ceftazidime and Ampicillin.

Conclusion:

The severe disease, high fatality and resistance to commonly-used antibiotics associated with pantoea specie infections in these settings indicate a need for closer monitoring of patterns of sepsis, particularly in preterm and low birthweight infants.

WSPID19-0044 E-Poster Viewing - 6-8 November Bacterial Infections: Other bacterial infections

POST-STREPTOCOCCAL ARTHRITIS IN AN 8-YEARS OLD GIRL WITH PREVIOUS B-HAEMOLYTIC TYPE A STREPTOCOCCAL INFECTION. MANAGEMENT AND ONE YEAR FOLLOW UP

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Background:

Rheumatic Fever (RF) results from the body's autoimmune response after a beta-haemolytic Streptococcal type-A throat infection. Its diagnosis is based on reviewed Jones criteria. The term Post-streptococcal Arthritis (PSA) is used to describe various constellations that do not meet these criteria while it is not clear if it represents a mild or early form of RF.

Aims:

To describe the case of an 8-year old Roma girl with PSA following a streptococcal tonsillitis and its diagnostic/ therapeutic approach.

Methods:

Information were gathered through our electronic-database.

Results:

The child was admitted due to 24-hours gait disturbances, arthralgia and mild left-knee-joint edema. Clinical examination displayed pain on left-great-toe, left-wrist-joint and neck stiffness. Medical history revealed undertreated tonsillar infection 30days ago (positive S.pyogenes throat culture). It is also reported hospitalization, 9 days ago, due to knee joint pain, gait disturbances, 38.5°C, increased biomarkers (WBC:13x109/L, CRP:31,3mg/L, ESR:35mm/h) for which it received antibiotic treatment with clinical improvement. During last hospitalization the child was subfebrile and reported migrating arthralgia. Blood results:(WBC:14,8x109/L, CRP:16,9mg/L, ESR:29mm/h, ASL:461IU/mI), ECG-Heart U/S:without pathology. Due to strong evidence of PSA it received 1-month per-os Ibuprofen and was introduced to long-term IM benzathine penicillin-G (1.2 million units/ monthly) treatment. The child does not report till now any similar symptoms and is under frequent pediatric, cardiologic and rheumatologic follow-up

Conclusion:

RF and PSA are two overlapping clinical conditions with potential severe complications resulting from previous under/non treatment Streptococcal tonsillitis, like in our case. This depicts the

importance of correct/complete antibiotic regimen to prevent complications. Follow-up includes frequent pediatric/cardiologic/rheumatologic assessment.

WSPID19-0116 E-Poster Viewing - 6-8 November Bacterial Infections: Other bacterial infections

IMMUNE THROMBOCYTOPENIC PURPURA SECONDARY TO TUBERCULOSIS: A CASE REPORT AND LITERATURE REVIEW

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Background:

Tuberculosis can present with a variety of hematological changes, one of which is thrombocytopenia. Secondary immune thrombocytopenic purpura (ITP) associated with tuberculosis (TB) has rarely been described in literature.

Aims:

We present our clinical experience in the diagnosis and management of ITP secondary to TB. We also review literature of various hematological manifestations of tuberculosis and treatment options for ITP-associated TB.

Methods:

Case report

Results:

Our patient is a 7 year old female who was admitted in our institution for hemoptysis. She had a chronic history of right lateral neck mass, cough and progressive weight loss. On physical examination, there were multiple petechiae on her face and extremities, a prominent gibbus deformity and ulcers present at lumbar area and foot. Complete blood count showed thrombocytopenia and anemia. The diagnosis of bone marrow tuberculosis was confirmed by a positive bone marrow TB polymerase chain reaction (PCR) test. Bone marrow aspiration biopsy also showed megakaryocytic hyperplasia consistent with ITP.

Conclusion:

Immune thrombocytopenic purpura can be one of the hematological manifestations of tuberculosis. Anti-tuberculosis treatment appears to be the most effective intervention for recovery of thrombocytopenia. Rapid diagnosis of TB and initiation of treatment should be given priority. TB should always be considered as the underlying cause of ITP especially in endemic areas.

WSPID19-0191 E-Poster Viewing - 6-8 November Bacterial Infections: Other bacterial infections

FINDING A METABOLIC DISEASE LOOKING FOR IMMUNODEFICIENCY IN THE ETIOLOGY OF BCG LYMPHADENITIS

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Background:

Bacille Calmette-Guérin (BCG) vaccine contains virulence-reduced *Mycobacterium bovis* strain. Although it is one of the most reliable vaccines, adverse effects can be observed because of the different causes.

Aims:

It should be remembered that incidental diseases can also be seen in patients with a prediagnosis of tuberculosis.

Methods:

Here, we present a female patient who developed left axillary lymphadenopathy after vaccination.

Results:

The patient whose neuromotor development regressed from the seventh months, presented with left axillary lymphadenopathy. It was learned that lymph node excision was performed in the same region before 4 months ago. There was a consanguineous marriage between his parents. There were axial hypotonicity; bilateral multiple lymph nodes in the cervical, submandibular, axillary and inguinal regions on her physical examination. Abscess formation of 4 * 2 cm was in the left axilla. BCG scar was observed on the left arm. Laboratory tests were normal. Blood samples were sent for screening the immunodeficiencies. During the hospitalization, the lymph node was excised and the abscess was drained. Nine acid-resistant bacilli were seen in each area, *Mycobacterium bovis* was produced in culture. Thorax CT revealed lymph nodes and antituberculous therapy(HRE) was started. Systemic scans were

performed, and eye examination revealed a Japanese flag. Hexosaminidase A and total hexosaminidase (A + B) were positive.

Conclusion:

BCG lymphadenitis, which is accompanied by common lymphadenipates, often suggests immunodeficiencies. However, in our country where the rate of consanguineous marriage is relatively high, it is necessary to consider metabolic diseases which may accompany.

WSPID19-0227 E-Poster Viewing - 6-8 November Bacterial Infections: Other bacterial infections

A CASE THAT PROGRESSED TO EPIDURAL ABSCESS WHILE BEING TREATED FOR ORBITAL CELLULITIS ACCOMPANIED BY SUBPERIOSTEAL ABSCESS

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Background:

Nasal intracranial complications are pathologies in which the cranium becomes exposed to inflammation due to rhinosinusitis. These diseases can be fatal if diagnosis and treatment are delayed.

Aims:

We experienced a case in which diagnostic imaging led to an early diagnosis of a nasal intracranial complication, which was treated successfully without any sequelae. Because diagnosis can be a challenge when access to computed tomography (CT) or magnetic resonance imaging (MRI) is limited, we investigated signs and symptoms in addition to imaging findings that could indicate nasal intracranial complications. Case: The patient was a 13-year-old boy who was hospitalized for fever, headache, and swelling around the left orbit. Cranial CT indicated rhinosinusitis and orbital cellulitis complicated by subperiosteal abscess. The fever did not resolve with antibiotics, and surgery was performed the next day to drain the intraorbital subperiosteal abscess and paranasal sinuses. *Streptococcus intermedius* was detected from a blood culture, intraorbital abscess pus specimen, and paranasal sinus pus specimen. Despite medical and surgical treatment, the fever and a mild headache persisted. An MRI revealed an epidural abscess and burr-hole drainage was performed.

Methods:

Retrospective examination of medical records and a literature review

Results:

In our case, persistent fever and headache were signs of progression to an epidural abscess.

Conclusion:

When fever and headache persist despite surgical treatment, intracranial complications should be suspected.

WSPID19-0373 E-Poster Viewing - 6-8 November Bacterial Infections: Other bacterial infections

A STUDY ON PREVALENCE OF ADVERSE OCULAR MANIFESTATIONS IN PATIENTS RECEIVING ETHAMBUTOL IN THE REVISED NATIONAL TUBERCULOSIS CONTROL PROGRAM AT EAST AVENUE MEDICAL CENTER

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Background:

Tuberculosis is one of the most important systemic infections. Ethambutol has been used to treat tuberculosis since the 1960s, but related visual impairment was recognized soon after its introduction.

Aims:

To determine the prevalence of adverse ocular manifestations after taking Ethambutol as part of the treatment regimen of children with Tuberculosis.

Methods:

A cross – sectional analytical study. Patients aged 3 – 18 years old enrolled for treatment of tuberculosis were included. Patients without prior diagnosis of opthalmologic problems and without history of previous ophthalmologic signs and symptoms were included. Demographic factors, personal and medical history of patients were obtained. Visual acuity by Snellen chart, color vision by the Ishihara Chart, direct fundoscopic examination, and anterior segment slitlamp biomicroscopy were performed. Statistical analysis used were Mann Whitney U Test, Yates' chi-square test, Fisher's Exact test, Chi-square test. Statistical significance was based on p-values ≤ 0.05 .

Results:

93 out of 101 patients had no ocular manifestations, however, 8 (7.9%) of the subjects had ophthalmologic findings; 1 had red-green color vision defect, 6 with error of refraction, and 1 had blurring of superior disc margin in both eyes with red-green color vision defect. There was no significant relationship on the dosage and duration of the drug to the manifestation of optic symptoms of the patients.

Study showed that there was no significant ophthalmologic effect on children taking ethambutol provided that it will be given within the recommended dose and duration. Patients however, should be monitored for any visual manifestations during treatment.

WSPID19-0499 E-Poster Viewing - 6-8 November Bacterial Infections: Other bacterial infections

GUILLLAIN BARRÉ SYNDROME IN PEDIATRIC ICU : REVIEW OF 30 CASES

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Background:

Guillain-Barré Syndrome (GBS) is an acute, ascending polyradiculoneuropathy. It's the most common cause of flaccid paralysis in the world, usually occurring after respiratory or gastrointestinal infections. The characteristics of pediatric forms of GBS are unknown and rarely reported.

Aims:

To describe the epidemiological, clinical, paraclinical and evolutionary aspects in the pediatric population

Methods:

descriptive retrospective study spread over a period of 06 years (January 2012-December 2017), Including all patients admitted to the pediatric ICU of the university hospital of Casablanca

Results:

Thirty patients were enrolled. the average age was 4.5 years (2-10 years). We report a male predominance (sex ratio 1.4). The most common predisposing factor was respiratory infection (53,3%). Pain (arthralgia, myalgia, paraesthesia) was inaugural in 66,6% of cases. Pyramidal signs were found in 46,7% of cases. The nerve conduction study (NCS) was performed in all patients confirming the diagnosis. Albumin-cytologic dissociation was found in 50%. All patients were treated with Immunoglobulins. The average duration of hospitalization was 69 days. The overall mortality was 10%. Twenty percent of patients surveyed at an average of 1 year after onset reported persistent motor disorders of various kinds: fatigability, muscle pain during prolonged exercise, motor incoordination, decreased grip strength. Other neurological deficits were discrete: areflexia in 15% of cases, decrease in sensitivity in 20%

Conclusion:

In pediatric population, the respiratory infections are frequent, the Albumin-cytologic dissociation is present in half of the cases. the duration of ICU stay is long. 20% of infants would report persistant motor or sensitive disorders.

WSPID19-0042 E-Poster Viewing - 6-8 November Bacterial Infections: Sepsis

A CASE REPORT OF SEVERE SEPSIS TO A 15-YEARS-OLD TEENAGER WHO REQUIRED ADMISSION IN INTENSIVE CARE UNIT AND ITS MANAGEMENT <u>A. Anastasiou-Katsiardani¹</u>, E. Kalantzi¹, A. Beslika¹

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Background:

Sepsis is a systemic inflammatory response to a confirmed or suspected infection. Sepsis is considered severe when it is associated with dysfunction in two or more organ systems. It is the first cause of death in childhood worldwide.

Aims:

To describe the case of severe sepsis in a 15-years-old female, hospitalized in our Pediatric Department (PD) and Intensive Care Unit (ICU) and analyze its management.

Methods:

Information were collected from the clinical record and the electronic database of our PD concerning seriously ill hospitalized patients.

Results:

The adolescent was admitted to our PD due to 24-hours-fever with vomiting, throat pain and drowsiness. On admission the patient presented with paleness, tonsillitis, heart murmur and cervical stiffness. She developed hypotension, tachycardia, chest pain and oliguria. The laboratory tests revealed increased inflammatory biomarkers, leukocytosis, thrombocytopenia, prolongation of clotting time, gradual increase of troponin index and impaired renal function. The microbiological (pharyngeal, blood, CSF, urine, stool, blood cultures and PCR) and serology investigations revealed no specific cause of fever. Imaging tests (chest, cervix, abdomen, heart) were performed without remarkable findings. The patient received oxygen therapy, intravenous hydration, antibiotic regimens (ceftriaxone, vancomycin. Ciprofloxacin was added in ICU), fresh frozen plasma and intravenous diuretics (furosemide). On the 3rd day of hospitalization the patient was transferred in the ICU for 3days and then returned to the PD, where she completed 14days treatment.

Conclusion:

Early recognition of sepsis, aggressive treatment with antibiotics and supportive intervention of organ systems reduce mortality. In up to 60% of patients with sepsis, no pathogen is identified.

WSPID19-0209 E-Poster Viewing - 6-8 November Bacterial Infections: Sepsis

PHARMACOLOGICAL INHIBITION OF OGA IMPROVE OUTCOME OF SEPTIC SHOCK IN YOUNG

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Background:

We have shown that increase in O-GlcNAc level, a post-translational modification, at the early phase of septic shock is a potential new therapeutic strategy for adult. Young population is particularly at risk of septic shock but is rarely studied. Considering the variation of O-GlcNAc levels throughout ageing, the potential impact of O-GlcNAc stimulation at the early phase of septic shock in the young should be evaluated.

Aims:

Evaluate if O-GlcNAc stimulation could improve sepsis outcomes in young.

Methods:

Endotoxemic shock was induced in 28 days old rats (n=50) with an i.v. injection of saline (CTRL) or LPS (O111:B4-20 mg.kg-1). 1h after LPS rat were randomly assigned to no therapy (LPS), fluidotherapy (saline, 10 ml.kg-1 - LPS+R) or LPS+R+NButGT (NButGT-10 mg.kg-1) to increase O-GlcNAc levels. 2h later, physiological functions and plasmatic markers of severity were measured. Mass spectrometry (MS) was performed on heart powder to identify the impact on proteins O-GlcNAcylated.

Results:

LPS induced a shock (mean arterial pressure (MAP): CTRL: 67.2±1.9; LPS: 50.7±2.1 mmHg; p<0.05), altered biological parameters (lactates: CTRL: 3.92±0.26; LPS: 6.42±0.45 mmol.l-1; troponin: CTRL: 19.7±4.0; LPS: 45.4±11.4 ng.l-1; p<0.05) and adapted-PRISM Score. LPS+R had no beneficial effect while NButGT improve MAP (NButGT: 72.2±4.0 mmHg; p<0.05) and

adapted-PRISM Score (p<0.05). MS results allow identification several proteins O-GlcNAcylated involved in stress response.

Conclusion:

Despite higher O-GlcNAc levels in young population, we demonstrate for the first time that an acute O-GlcNAc stimulation is beneficial and is a potential new therapeutic strategy. New proteins identified with MS opens new potential avenue.

WSPID19-0233 E-Poster Viewing - 6-8 November Bacterial Infections: Sepsis

CAN NEUTROPHIL-TO-LYMPHOCYTE RATIO AND C-REACTIVE PROTEIN BE USED AS ADDITIONAL MARKERS FOR THE DIAGNOSIS OF SEPSIS IN CHILDREN? - AN OBSERVATION

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Background:

Neutrophil-to-Lymphocyte Ratio (NLR) and C-reactive protein (CRP) have been found to be useful markers for the diagnosis of sepsis in adults. However, reports regarding their utility in the diagnosis of sepsis in children are sparse.

Aims:

The aim of this study was to assess the diagnostic utility of NLR and CRP, either individually or together as a marker for the diagnosis of sepsis in children.

Methods:

A total of 109 children (Age: 6 days to 11 yrs) with a clinical suspicion of sepsis were included in this study. Children were classified into sepsis or non-sepsis group based on a clinical suspicion and increased Procalcitonin level (> 0.5 ng/ml). NLR and CRP were determined employing standard protocols.

Results:

Seventy eight of the 109 children were included in the sepsis group (Procalcitonin level: > 0.5ng/ml) while 31 were included in the non-sepsis group (Procalcitonin level: <0.5ng/ml). A NLR of >1 was observed in 54/78 children in the sepsis group and in 10/31 in the non-sepsis group (p=0.000405). A CRP level of >10 mg/L was observed in 48/67 children in the sepsis group and in 7/27 children in the non-sepsis group (p=0.00047). A NLR of >1 together with a CRP of >10 mg/L was observed in 36/67 children in the sepsis group and in 4/27 in the non-sepsis group (p=0.000554).

NLR and CRP can be used as additional laboratory markers either independently or in combination for the diagnosis of sepsis in children in addition to the determination of Procalcitonin levels.

WSPID19-0314 E-Poster Viewing - 6-8 November Bacterial Infections: Sepsis

A CASE OF TYPE 1 TYROSINAEMIA IN A PREVIOUSLY HEALTHY INFANT PRESENTING WITH STREPTOCOCCUS PNEUMONIAE SEPSIS, FOOT ABSCESS AND CYTOMEGALY VIRUS INFECTION

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Background:

Type 1 tyrosinaemia complicated with *Streptococcus Pneumoniae* sepsis, abscess and cytomegaly virus infection is rare.

Aims:

To investigate the clinical features of type 1 tyrosinaemia complicated with *Streptococcus Pneumoniae* sepsis, abscess and cytomegaly virus infection.

Methods:

A case of type 1 tyrosinaemia complicated with *Streptococcus Pneumoniae* sepsis, abscess and cytomegaly virus infection were analyzed.

Results:

A severely ill 2-month-old male infant was admitted to our department presenting with left foot abscess caused by *Streptococcus pneumoniae*. He also had positive result of penicillinsensitive *Streptococcus Pneumoniae* (serotype 6B) from blood culture. The patient also had cytomegaly virus infection [positive serum CMV- IgM and IgG, CMV viral load in blood (500 copies/ml) and urine (7×106 copies/ml)]. MRI showed multi-lesions in the shrink liver. The coagulation profile was significantly disturbed despite replacement treatments with fresh frozen plasma and vitamin K, raised the suspicion of tyrosinaemia. Genetic analysis confirmed the diagnosis. Our patient was found to be heterozygous for the c.520C>T mutation in exon 6 and the c.742G>A mutation in exon 9 of the fumarylacetoacetate hydrolase (FAH) gene. Both parents were heterozygous carriers of the mutation. He was treated with intravenous antibiotics and ganciclovir. The infection was finally cure left with coagulopathy and liver lesions.

Pediatrician should recognize type 1 tyrosinaemia from patient with Streptococcus Pneumoniae sepsis and cytomegaly virus infection along with refractory coagulopathy.

WSPID19-0029 E-Poster Viewing - 6-8 November Common and neglected tropical Infections and parasitic infections

QUANTIFYING MALARIA ENDEMICITY IN ETHIOPIA THROUGH COMBINED APPLICATION OF CLASSICAL METHODS AND ENZYME-LINKED IMMUNOSORBENT ASSAY: IMPLICATIONS FOR MALARIA ELIMINATION PROGRAMME

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Background:

Malaria elimination requires continuous evaluation of the level of transmission to guide re-orientation of control measures.

Aims:

To investigated the level of malaria transmission through combined application of classical methods and enzyme-linked immunosorbent assay (EIA) in Ethiopia

Methods:

This study was conducted in June 2016 on 763 apparently healthy children 2–9 years of age. Splenomegaly rate, infection rate and EIA antibody test were used to determine endemicity levels.

Results:

The overall prevalence of malaria parasitaemia was 2.49% (95% CI 1.38–3.59) and 2.36% (95% CI 1.28–3.44) as detected using rapid diagnostic test and microscopy, respectively. *Plasmodium falciparum* accounted for 62.63% of the infections. The prevalence of parasitaemia significantly varied by altitude and localities; the highest (5.8%) in areas below 1500 m above sea level. Overall, splenomegaly rate was 1.70% (95% CI 0.78–0.2.66%), making the overall malaria transmission hypoendemic. However, EIA showed a higher level of cumulative exposure to malaria with spatially localized and highly heterogeneous transmission. Overall, 126 (18.75%, 95% CI 15.79–21.71) of the children were positive for total malaria antibodies with significant variations with altitude, age and sex; the higher in areas of < 1500 m asl (25.8%), children > 5 years (22.1%) and among males (20.9%).

The classical metrics are not good measures to show variations in the levels of malaria transmission in low endemic settings. But serological marker is a good measure of malaria endemicity showing greater degree of heterogeneity. Thus, malaria elimination efforts need to be supported by serological indicators.

WSPID19-0176 E-Poster Viewing - 6-8 November Common and neglected tropical Infections and parasitic infections

DESIGN AND SYNTHESIS OF NOVEL HYBRID DERIVATIVES OF 4-AMINOQUINOLINE AGAINST MALARIA

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Background:

Search for new pharmacophores for antimalarial activity is due to the alarming spread of drug resistant strain of *Plasmodium falciparum*, which is the most lethal parasite species, underscores the urgencSearch for new pharmacophores for antimalarial activity is due to the alarming spread of drug resistant strain of *Plasmodium falciparum*, which is the most lethal parasite species, underscores the urgency and continuous need for the discovery of new therapeutics. y and continuous need for the discovery of new therapeutics.

Aims:

The aim of the present study was to develop new potential antimalarial agents.

Methods:

A new series of hybrid derivatives of 4-aminoquinoline and Mannich bases were synthesized by modifications at the side chain of Chloroquine with 1, 2-diaminopropane; and pendent amino group with Mannich bases of substituted acetophenone without making alteration in 4-aminoquinoline nucleus.

Results:

All the synthesized compounds were ascertained by melting point and TLC; further these compounds were characterized by UV-Visible, IR, NMR (1H &13C) and mass spectral studies and elemental (CHN) analysis. The *in- vitro* antimalarial activity2results clearly indicate that all the synthesized compounds showed moderate antimalarial activity (showed MIC between 15.6-125 µg/mL) against 3D7 strain of *P. falciparum* at the tested dose.

Conclusion:

Compounds with heterocyclic & aryl amine substituted Mannich bases showed potential to develop novel antimalarial compounds.

WSPID19-0178 E-Poster Viewing - 6-8 November Common and neglected tropical Infections and parasitic infections

EFFECTS OF INTESTINAL PARASITISM ON DEVELOPMENTAL PROGRESS AND NUTRITIONAL STATUS OF PUBLIC PRESCHOOL PUPILS AGED THREE TO FIVE YEARS OLD IN VIGAN CITY, ILOCOS SUR

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Background:

Soil transmitted helminth (STH) infections remains as one of the major health problem in the Philippines. Inadequate nutrition, personal hygiene, overcrowding, poor environmental sanitation, and difficulties in the implementation of control measures are known to be the cause of these infections.

Aims:

The aim of the study is to determine the effects of intestinal parasitism to the developmental progress and the nutritional status of public preschool pupils aged three to five years old in Vigan City, Ilocos Sur.

Methods:

This is a descriptive cross-sectional study of 142 preschool pupils from three to five years old in Vigan City, Ilocos Sur. Socio-demographic profile was collected using a structured questionnaire. Collected stools were analyzed using direct fecal smear and Kato thick method. Developmental progress was assessed with Early Childhood Care Development checklist and the nutritional status was evaluated by anthropometric measurements.

Results:

The prevalence of STH infection is 23.9%. Majority of the affected respondents are four to five years old, male, preschool pupils from Poblacion area and have an average overall development and nutritional status.

There is no significant difference between the developmental progress and nutritional status of preschool pupils with STH infections and respondents who are not infected. There is also no significant relationship of having intestinal parasites on the developmental progress and nutritional status of the respondent.

The researchers recommend counselling with parents and other family members regarding good hygiene, adequate nutrition and proper environmental sanitation. Also, the appropriate departments should strictly monitor and implement deworming programs to ensure that all children are dewormed.

WSPID19-0203 E-Poster Viewing - 6-8 November Common and neglected tropical Infections and parasitic infections

CLINICAL PROFILE, OUTCOME, AND EXTENT OF DISABILITY FOLLOWING JAPANES ENCEPHALITIS IN CHILDREN ADMTTED IN NORTHERN MINDANAO MEDICAL CENTER <u>A. Guinal¹</u>, A. Austria¹, C. San Juan¹

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Background:

Japanese Encephalitis (JE) is one of the leading causes of viral encephalitis in Asia, with Philippines as one of the high incidence areas. It has no specific treatment resulting to significant neurologic disability with vaccination as the single most important control measure.

Aims:

This study aims to determine the clinical profiles, outcome, and level of disability using the Liverpool Outcome Score (LOS) of pediatric JE cases from a tertiary government hospital in the Philippines.

Methods:

This is a descriptive study comprised of two parts. Part 1 was a chart review of laboratoryconfirmed JE cases from January 2016 to December 2018. Part 2 was home interview of parents/guardians and physical examination of the patients using the LOS, 6 to 24 months after hospital discharge.

Results:

There were 11 JE cases with age ranging from 1 to 15 years old, mostly residing near rice-fields and piggeries. Fever was present in all patients with weakness/paralysis, seizure, and altered sensorium as the most common neurologic manifestations. CSF results were normal in 36.4% while cranial CT revealed thalamocapsuloganglionic involvement in 54.5% of cases. Nine

patients survived, six (67%) had moderate to severe sequelae while 3 cases recovered fully (33%).

Conclusion:

Over half of the children with JE resulted to either death or to lifelong disabilities demonstrating the severity of its impact to health. The need to raise public awareness, strengthen surveillance system, and promote immunization against JE to avert some of the economic and social burden of the disease are emphasized.

WSPID19-0207 E-Poster Viewing - 6-8 November Common and neglected tropical Infections and parasitic infections

OCULAR INVOLVEMENT IN CONGENITAL TOXOPLASMOSIS: A CASE REPORT

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Background:

Introduction: Congenital toxoplasmosis (CT) occurs in the form of primary infection in pregnancy or by reactivation of primary infection in pregnant women with immunosuppression. It is associated with severe complications in infected fetus.

Aims:

In this report, a case with CT who developed bilateral ophthalmic complication in both eyes with congenital cataract, was presented.

Methods:

Case: The patient has been referred to the ophthalmology department for lack of eye contact by the pediatrics clinics. Suspected positivity of toxoplasma Ig M and congenital cataract were detected. In the mother, anti-toxoplasma IgM was (+) at suspect, IgG: >650 (+) with high avidity and in the baby, anti-toxoplasma IgM was (+) at suspect, IgG: 64 (+) with low avidity, PCR was (-), Sabin Fieldmann: 1/256 positive, CSF protein: 55 mg/dl, CSF glucose: 49 mg/dl and CSF PCR was detected as (-). Anti-toxoplasma Ig G was 465 in the serological follow-up at 18 days after the admission of the patient. Cranial MRI revealed dysgenesis of the corpus callosum with no calcification in the brain parenchyma.

Results:

An increase in anti-toxoplasma Ig G titers with clinical signs, was diagnosed as congenital toxoplasmosis and primetamine, sulfadiazine, leukoverin treatment was initiated. The patient with congenital cataract was operated. The patient is still on a follow-up.

Conclusion:

Conclusion: Congenital toxoplasmosis should be kept in mind in patients presenting with congenital cataract. The most common ocular sign associated with CT is chorioretinitis, whereas congenital cataract is rare. This rare association was emphasized with this case presentation.

WSPID19-0221 E-Poster Viewing - 6-8 November Common and neglected tropical Infections and parasitic infections

HYPEREOSINOPHILIA IN CHILDREN -A CASE SERIES

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Background:

Hypereosinophilia is an elevation in eosinophil count above 15×10^9 per L which might be the manifestations of various conditions such as helminthic infestation.

Aims:

To study clinical profile and investigations of children with hypereosinophilia.

Methods:

Charts of children who were admitted, between January 2017 to December 2018, in Pediatric department were reviewed. A total of 8 cases were diagnosed as hypereoshinophilia. Medical records were reviewed and information collected included age, gender, clinical features, and investigation. Among them record of 1 patient was missing.

Results:

Out of 7 children, 6 were male and 1 was female. Mean age was 6 years. Fever ,cough and shortness of breath was present in 5, loss of appetite in 3, chest pain in 2, abdominal pain in 2, history of eating crab in 5 and snail in 1. Pleural effusion was present in 5, pleural plus pericardial effusion in 1, pleural effusion plus ascites in 1, Hepatomegaly was present in 1. ESR was elevated in all the cases. All cases had received praziquantal as treatment. 6 patients got symptomatically better with treatment while 1 case was referred during treatment.

Conclusion:

Hypereosinophilia is a rare entity in pediatric population. However, if a child from a low resource setting presents with long standing fever, cough and shortness of breath with pleural effusion and or polyserositis, a trial of antihelminthic drug should be given if there is a clear history of intake of raw or undercooked crab or snail.

WSPID19-0424 E-Poster Viewing - 6-8 November Common and neglected tropical Infections and parasitic infections

SCABIES A NEGLECTED TROPICAL DISEASE AND HEALTH PROMOTION IN A BOARDING SCHOOL IN SLEMAN, YOGYAKARTA, INDONESIA

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Background:

Scabies is an infestation of the skin by the human itch mite, *Sarcoptes scabiei var hominis*. Scabies occurs worldwide and can spread rapidly under the crowded area where person to person contact is frequent.

Aims:

The study aims were to measure the prevalence of scabies and to analyze demographic factors of scabies among the student of Ash Shalihah pesantren in Sleman, Yogyakarta.

Methods:

This study was designed as a cross-sectional observational study, carried out in dormitories, in December 2016. Participants were currently residing in the study site and whose guardians had given their consent in this respect. The diagnosis was made based on history taking and dermatology examination. Data were managed by statistical software and analyzed using *Chisquare*.

Results:

A total of 138 schoolchildren aged 6-15 years, received a clinical check-up. The boys were 87 (63.0%) and the girls 51 (37.0%). The results showed that the prevalence of scabies was 62.3%. A Chi-squared test showed statistically significant differences between the prevalence of scabies with the gender of the student. There are 73 (83.9%) were boys and 13 (25.5%) were girls. The association between scabies and aged showed that the infestation of scabies was higher in children aged 6–8 years than in those aged 9–11 or 12–15 years (p<0.05).
Conclusion:

Scabies remain health problem in boarding school with the prevalence of more than 50%. Therefore, to reduce the infestation rates of the disease, screening and treatment is needed to be carried out regularly. The children and the guardians should be given health education continuously.

WSPID19-0190 E-Poster Viewing - 6-8 November Emerging and Zoonotic Infections

SINGLE CENTER EXPERIENCE IN BRUCELLOSIS FOR TEN YEARS

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Background:

Brucellosis, which is endemic in our country, is frequently transmitted by infected material of animals such as goat sheep. It can hold all systems with the reticuloendothelial system.

Aims:

It is foreseen that the risk of complications and relapses will be reduced by giving the selected treatments in the appropriate time.

Methods:

In our center, 34 patients with brucellosis diagnosed by clinical and laboratory findings in the last decade have been examined retrospectively.

Results:

Twenty-three of the cases were male (67.6%), 11 were female (32.3%). The mean age at presentation was 119.85 ± 57.5 months. 35.2% of the patients were living in rural areas. The most common complaints; fever (82.3%), joint pain (73.5%) and weakness (73.5%). The most common physical examination findings were lymphadenopathy with a rate of 26.4%. Three patients (8.8%) had hepatomegaly, 2 (5.8%) had splenomegaly and 3 (8.8%) had hepatotopathy. One patient had scrotal involvement. The most common laboratory finding was an increase in the erythrocyte sedimentation rate of 64.7%. Wright test was positive in 1/160 and above in 28 (82.3%) of 34 patients. 8 of 16 patients (23.5%) with blood culture were found to have growth. All patients received combined treatment appropriate for age. Six (17.6%) patients developed relapse. Mortality was 0%.

Conclusion:

It continues to exist as a public health problem because of its ability to affect large masses and the large number of complications. In our country, which is endemic to brucellosis, education is the most effective way of protection.

WSPID19-0065 E-Poster Viewing - 6-8 November Global Child Health

THE PRACTICE OF BREASTFEEDING BY PRIMIPARES

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Background:

Each breastfeeding is unique, it requires a nuanced and personalized approach.

Aims:

Evaluate the rate of breastfeeding by primipares, report mothers' knowledge before delivery

Methods:

Our study had interested 60 primiparous women whose age ranged from 17 to 30 years, the delivery took place within the department of gynecology-obstetrics University Hospital Center Mohamed VI, Marrakech; Morocco.

Results:

We found that 66.6% of the mothers interviewed expressed complete ignorance about the progress of breastfeeding, due to lack of information during pregnancy; 25% of mothers had a prior idea of breastfeeding from the messages conveyed by education, the social and family environment, while only 8.3% were informed during the follow-up of pregnancy by a health professional; 16.6% of women believed that breastfeeding is more beneficial than breastfeeding. All the women interviewed had hoped to have more precise information on this method of breastfeeding.

Conclusion:

Based on our study, it appears that the majority of mothers are unaware of the benefits, the practice, and also the difficulties encountered in breastfeeding. Adequate and complete information during birth preparation will enable them to better manage this method of breastfeeding.

WSPID19-0218 E-Poster Viewing - 6-8 November Global Child Health

CHILD HEALTH INEQUALITIES IN INDIA: MEASURING PROGRESS TOWARDS EQUITY *M.Z.* Siddiqui¹

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Background:

The distributional dimension of health status draws researcher's attention across the world to quantify the volume of health inequalities, especially among vulnerable population such as children.

Aims:

Thus the primary objective of this research is to assess whether, over the period these inequalities across the states and socio-economic groups becoming more similar or dissimilar.

Methods:

We have used multiple data sources to assess the convergence in averages of child mortality indicators through different convergence matrices; Dispersion Measure of Mortality (DMM), Gini coefficients along with both , sigma and conditional- convergence. Inequality of Opportunity Index (*D*-index) was estimated to make the need assessment for future prospects of convergence in child health.

Results:

DMM estimates shows continued convergence whereas Gini coefficients showing divergence in recent period. The findings of absolute and conditional convergence suggest the reduction in gaps for average child health status across the states. Sigma convergence estimates suggest the deviation in child health inequalities was more in recent period than previous. Inequality of Opportunity Index suggests that there is still the gap of 23% in IMR, 31% in Immunization and 35% in underweight at to be reduced to bring all the population sub-groups of India to fall on line of equality and to make complete convergence in child health.

Conclusion:

Analyses provide evidences for convergence in averages of child health indicators. Findings also support the convergence in absolute deviations of child health indicators. However, convergence estimates in relative dispersion and socio-economic inequalities in selected child health indicators support the divergence for recent periods.

WSPID19-0235 E-Poster Viewing - 6-8 November Global Child Health

KHUSELA IMMUNISATION STUDY: STRENGTHENING CLINIC LEVEL IMMUNISATION SERVICE DELIVERY IN WESTERN CAPE PROVINCE, SOUTH AFRICA

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Background:

Since 1974, the South African Expanded Programme on Immunisation (EPI) has had considerable impact on vaccine-preventable-diseases (VPDs). However, as in many low- and middle-income countries, optimal vaccine coverage and immunisation program service delivery remains an ongoing challenge with intermittent VPD outbreaks.

Aims:

This study aimed to strengthen immunisation service delivery for children under 24 months at the clinic level in Khayelitsha, Western Cape.

Methods:

An adaptive approach was developed to assess current performance and barriers to immunisation service delivery. Local interventions drawing from principles of implementation research, and global/national strategies, were co-designed with key stakeholders and clinic staff to target high priority barriers. Interventions were implemented for 4-6 months and evaluated using theory-based evaluation tools.

Results:

Major barriers identified related to clinic service delivery, community engagement and parental knowledge, and immunisation service quality. Parent/guardian concerns related to access or practical barriers to immunisation, convenience, parents/guardians-staff interaction, and clinic

friendliness. Interventions developed included health education radio sessions, clinic health talks, health promotion materials, and staff checklists and parent feedback forms. Evaluation post-intervention showed overall improvement in parents'/guardians' knowledge about immunisation, increased community engagement, and greater service provider commitment to improvement in service quality. Radio and other health communication materials were deemed more useful than staff checklists.

Conclusion:

This study approach indicated that a rigorous clinic-led assessment process can identify barriers, inform tailored interventions, and be evaluated in a short period. This approach can be adapted to guide future local participatory action research for improving immunisation service delivery and possibly other health services in under-resourced settings.

WSPID19-0324 E-Poster Viewing - 6-8 November Global Child Health

IMPACT OF NEW VACCINE INTRODUCTION ON TIMELY RECEIPT OF ROUTINE CHILDHOOD VACCINES IN TWO URBAN, INFORMAL SETTLEMENTS IN NAIROBI <u>C.B. Janusz¹</u>, M.K. Mutua², A.L. Wagner¹, M.L. Boulton¹ ¹University of Michigan, Epidemiology, Ann Arbor, USA ²African Population and Health Research Center, Health Challenges and Systems Research Program, Nairobi, Kenya

Background:

Increased focus on improving childhood vaccination is key to achieving the Sustainable Development Goal (SDG) 3.2 of reducing under-five mortality to <25 deaths per 1000 live births. New vaccine introduction accompanied by social mobilization activities could contribute importantly to improved timeliness of routine immunization.

Aims:

This study assesses the impact of introducing both the pneumococcal conjugate vaccine (PCV) in 2011 and rotavirus vaccine (RV) in 2014 in Kenya on the timeliness of routine vaccination among children 12-23 months in two urban, informal settlements in Nairobi.

Methods:

Data on children 12-23 months of age from the Nairobi Urban Health and Demographic Surveillance System was collected during 2003 to 2015. Changes in on-time receipt of diphtheria-pertussis-tetanus (DPT) doses will be compared between the pre- and post-PCV/RV eras. Logistic regression models using generalized estimating equations examine the association between new vaccine introduction and on-time vaccination.

Results:

Diphtheria-pertussis-tetanus (DTP) coverage and timeliness will be assessed among 62,817 children. After controlling for confounders, it is hypothesized that childhood vaccination completion and timeliness is not lower given concurrent introduction of new vaccines as compared to the counterfactual absence of new vaccine introduction.

Conclusion:

Many sub-Saharan African countries have newly introduced PCV and RV. Both vaccines have the potential to contribute substantially to the reduction of childhood mortality by preventing pneumococcal disease and rotaviral gastroenteritis. Additional evidence regarding the positive

or neutral influence of new vaccine introduction on the performance of delivery systems provides further justification to sustain the use of these newer, and more costly vaccines.

WSPID19-0355 E-Poster Viewing - 6-8 November Global Child Health

LOW COMMUNITY INCIDENCE OF COMPLICATED MALARIA IN AN AREA OF INTERMEDIATE ENDEMICITY IS NEITHER EQUAL TO HYPERPARASITAEMIA NOR HYPERPYREXIA. A CROSS-SECTIONAL SURVEY FROM NORTHWESTERN NIGERIA

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Background:

Malaria is a global disease with high mortality. It causes about 290,000 deaths annually. It's impact is highest in Sub-Saharan Africa with about 25% of total cases in Nigeria. Mortality usually occurs in complicated cases of malaria

Aims:

To determine the endemicity of malaria, prevalence of clinical malaria and complicated malaria among children aged 2 to 10 years.

To describe the clinical pattern of presentation of complicated malaria among children discovered during screening**Methods**:

The study was conducted in the rainy and dry seasons in Northwestern Nigeria. It has a tropical climate described as Local steppe. We recruited all eligible children aged 2 to 10 years within the study settlements and assessed them for malaria clinically and parasitologically. We treated those with malaria appropriately. The data was analysed using SPSS 22

Results:

We included 1017 children and found a prevalence of 34.8% of malaria parasitaemia, higher during the rainy season. The mean parasite density was 1006.13 per microlitre in the rainy season, and 405.45 per microlitre in the dry season. The prevalence of complicated malaria was 2.6% overall. The prevalence of hyperparasitaemia was 2.5% in the rainy season but only 0.2% in the dry season and hyperpyrexia was seen in 1.3% of all participants. Most children with complicated malaria had fever (92.3%) and vomiting (69.2%)

Conclusion:

The prevalence of malaria was 34.8% in the study area, with a 2.6% prevalence of complicated malaria and this is not entirely accounted for by the frequency of hyperparasitaemia and hyperpyrexia

WSPID19-0446 E-Poster Viewing - 6-8 November Global Child Health

IMPROVING PNEUMONIA CONTROL IN NIGERIA: FINDINGS FROM STAKEHOLDERS' ANALYSIS

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Background:

Pneumonia is the commonest cause of under-5 mortality in Nigeria, yet it receives little attention. This may be due to poor pneumonia visibility shaped by political environment.

Aims:

We aimed to determine political environment around pneumonia control and identify opportunities for intervention.

Methods:

This is a political analysis which involved web-based survey and meetings with stakeholders. We identified stakeholders from academic and grey literature as well as Every Breath Counts Coalition. We asked questions relating to their activities, barriers, opportunities and priority areas for pneumonia control.

Results:

We received 38 (34%) completed responses from 111 organizations and individuals that were identified to be relevant to paediatric pneumonia. Thirty-one (82%) out of 38 respondents were aware of essential medicine list, but few were aware of policy documents on medical oxygen. Respondents identified funding issue, lack of political will and healthcare workers' low motivation and inequitable distribution as key barriers to combating pneumonia. Whereas advocacy, successful policy implementation, increased immunization coverage, as well as oxygen therapy and pulse oximetry were regarded as opportunities in pneumonia control. Priority areas identified for pneumonia intervention included: community education and engagement, increasing pneumococcal conjugate and pentavalent vaccines, and nutrition

(community level); training on pulse oximetry and Integrated Management of Childhood Illnesses, and antibiotic access (primary care level). However, improving monitoring and evaluation and mobile health (mHealth) approaches were less favoured as priority areas.

Conclusion:

Focus on community and primary care levels is critical to improving pneumonia control in Nigeria

WSPID19-0069 E-Poster Viewing - 6-8 November Host-Pathogen Interactions

IS THERE ANY ASSOCIATION BETWEEN ATOPY AND MYCOPLASMA PNEUMONIAE-RELATED EXTRA-PULMONARY DISEASES IN CHILDREN?

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Background:

Mycoplasma pneumoniae (MP) infections are often characterized with mild respiratory symptoms and can be diagnosed only after the onset of MP-related extra-pulmonary diseases (MPEPDs), sometimes. Several organs may be affected in MPEPDs, which are supposed to be immunologically mediated.

Aims:

To analyze serum IgE level and the prevalence of atopy in children admitted to the hospital with clinical conditions consistent with MPEPDs, in order to assess this potential association.

Methods:

Observational retrospective study including all consecutive children admitted to the hospital because of respiratory diseases or unclear extra-pulmonary manifestations over a 12-month period.

Results:

Among 162 eligible patients, 27 children were excluded because of interfering factors (e.g. comorbidity, concomitant infections). The remaining 135 patients were analyzed by dividing them in 3 groups: I) MP-negative respiratory disease; II) MP-positive respiratory disease; III) MPEPDs.

Children with MPEDs showed significantly higher levels of total serum IgE than both other groups, including MP positive children with respiratory disease only. This difference was still significant if the results are relatively expressed by calculating the percent elevation of total serum IgE in each patient compared to the upper limit of the normal range for the age of each patient. These groups were not different as for personal history of allergy.

Conclusion:

In this study, children with MPEPDs showed higher levels of total serum IgE than children with MP or other respiratory infections. Even though IgE may not be directly involved in the

pathogenesis of most MPEPDs, atopy might be a kind of biological marker for the predisposition to develop these complications.

WSPID19-0510 E-Poster Viewing - 6-8 November Infections in the Immunocompromised Host and Transplant Patients

TALAROMYCES MARNEFFEI PULMONARY INFECTION IN A HYPER-IGM SYNDROME PATIENT

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Background:

Talaromyces marneffei is an emerging pathogenic fungus that can cause a fatal mycosis in immunocompromized patients, patients other than HIV-AIDS seem to have been previously reported rarely.

Aims:

To describe characteristics of *Talaromyces marneffei*pulmonary infetionin in pediatric patients with hyper-IgM syndrome.

Methods:

Here we present *Talaromyces marneffei* infection diagnosed by the culture of BALF and blood in a pediatric patient with hyper-IgM and neutropenia.

Results:

A 2 year-old boy was admitted to hospital because of recurrent fever for 2 month. He also had mild cough and mouth ulcers. He lived in the south of China, Gui Lin province. He previously had pneumonia, herpangina and mouth ulcers since 2 months old. His examinations were leukocyte count, 5,390-18,090/mm3; neutrophils fluctuated between 220-830 /mm3; hemoglobin, 9.3 g/dL; platelet count, 75,900/mm3; C-reactive protein 37-136mg/L. Meropenem and azithromycin were of no use. Chest CT presented scattered consolidation, enlarged lymph nodes in mediastinum and left hilar region with enhancement. Culture of blood and BALF resulted in *Talaromyces marneffei*. Voriconazole is administered for 2 weeks and the patients got recovered from fever and cough. The results of the sequencing revealed that a causative splice donor mutation in CD40L (c.346+1G>T in intron 3) from his mother.

Conclusion:

One should be aware that *T. marneffei* is not recognized as a health problem of AIDS patients only but also in other immunocompromized diseases such as hyper-IgM syndrome.

WSPID19-0174 E-Poster Viewing - 6-8 November Infections in the Immunocompromised Host and Transplant Patients

COMPARISON OF TST AND IGRA IN PEDIATRIC CANDIDATES OF HEART TRANSPLANTATION

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Background:

Currently, tuberculin skin test (TST) and interferon gamma release assay can be used to find the Latent tuberculosis infection (LTBI) cases in candidates of heart transplantation.

Aims:

The aim of this study was to compare TST and interferon gamma release assay (IGRA) for diagnosis of LTBI in pediatric heart transplant candidates.

Methods:

This cross-sectional study was performed on 50 children who were candidate for heart transplantation of which42 cases were underwent heart transplantation. This study was performed from 2016 to 2017 in Shahid Rajaie, Cardiovascular, Medical and Research center, Tehran, Iran.

Results:

In this study, 24 patients (%48) were male (p=0.67). The mean age of the patients was 8.18 \pm 4.27 years (1 to 16 years). IGRA was negative in all patients and no indeterminate result was reported, while PPD test was positive only in three (6%) cases. In comparison to QFT, an accuracy of 94% was achieved for TST to diagnose Mycobacterium tuberculosis infection.

Conclusion:

It seems that TST can still be used as an accurate test for screening LTBI in children, candidate for heart transplantation.

WSPID19-0268 E-Poster Viewing - 6-8 November Infections in the Immunocompromised Host and Transplant Patients

WHO WERE THE CULPRITS: INFECTION IN PEDIATRIC ACUTE MYELOID LEUKEMIA

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Background:

Infection was the main cause of mortality in children with AML in most of developing countries. One of the reasons of the high rate infection-related mortality was lack of data about bacterial and antibiotic pattern, resulting in improper management of infection.

Aims:

This study aimed to observe the microbiological profile of pediatric AML in Yogyakarta Pediatric Cancer Unit (YPCU), also to configure the pattern of antibiotic susceptibility based on blood culture.

Methods:

Results of microbiological culture from all specimens taken from patients with AML from 2016-2018, in YPCU were collected. Bacterial and fungal pathogens were identified. Antibiotics and antifungal susceptibility test were done by disc-diffusion method.

Results:

Of 151 specimens which done for culture, 39 (26%) were positive with 43 pathogens detected. There were 115 blood cultures with 17% positivity. Majority of isolates were Gram-negative bacteria (51%). Escherichia coli was the predominant Gram-negative (45%) while Gram-positive was dominated by Staphylococcus aureus (24%). Extended-spectrum beta-lactamase were positive in 10 Gram-negative isolates (45%). Five isolates of Staphylococcus were methicillin-resistant (62.5%). Vancomycin and rifampicin had a high sensitivity for Gram-positive bacteria (>70%). All carbapenem group and amikacin showed a significant sensitivity for Gram-negative bacteria (100%). Chloramphenicol, trimethoprim, amikacin, and amoxiclav had a high resistance rate for Gram-positive (75-80%), while high Gram-negative resistance was detected in ceftriaxone, aztreonam, and ampicillin-sulbactam (75%, 74%, 65% respectively).

Conclusion:

There was an increase of multidrug resistance in YPCU. Prudent use of antibiotics along with proper infection control should be implemented to increase the survival rate of pediatric AML patients.

WSPID19-0272 E-Poster Viewing - 6-8 November Infections in the Immunocompromised Host and Transplant Patients

STENOTRPHOMONAS MALTOPHILIA, THE HIDDEN THREAT AMONG PEDIATRIC CANCER PATIENTS

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Background:

Stenotrophomonas maltophilia is an emerging nosocomial pathogen in immunocompromised patients

Aims:

To analyze clinical characteristics, susceptibility pattern and treatment outcome of S. maltophilia among pediatric cancer patients.

Methods:

Retrospective analysis including pediatric cancer patients treated at children cancer hospital Egypt with S.maltophilia blood stream infection from 2013 till 2018.

Results:

Among 135 pediatric cancer patients, (281) isolates were detected . Most are hematological malignancies 67(50%), solid tumors 55 (40%) and post- transplant 13(10%). Most common hematological malignancies was acute lymphoblastic leukemia 34 patients (25%) while brain tumor was the most common solid tumors 20 patients (15%). The spectrum of infections includes bacteremia in 61 patients (45%) catheter related in 34(25%) , pneumonia in 22 (16%) , skin and soft tissue infection in 11(8%) meningitis in 5 (3%) and disseminated infections with multiorgan involvement in 4(3%) patients. 46 patients (34%) was admitted in intensive care unit (ICU) , 67 inpatient(50%) , 11 (8%) Stem cell transplant unit and 11 patient(8%) from emergency and outpatient department . The isolates revealed 80% susceptibility to Trimethoprim-Sulfamethoxazole (TMP-SMX), 77 % to Ciprofloxacin, 50% to cefepime and ceftazidime, 63 % to amikacin, 48 % to Piperacillin-Tazobactam, 93 % to Colistin, 97% to Tigecycline. Day 30 mortality (Crude mortality rate) 33 patients (25%) while Stenotrophomonasmaltophilia attributable mortality (died within 7 days ofcultureisolation)

was 17 patients (13%). Patients with pneumonia, (TMP-SMX)resistance and ICU admission were associated with significant risk of mortality.

Conclusion:

Stenotrphomonas maltophilia is a serious pathogen and hidden threat among pediatric cancer patients associated with high mortality rate.

WSPID19-0435 E-Poster Viewing - 6-8 November Infections in the Immunocompromised Host and Transplant Patients

A CASE OF PULMONARY NOCARDIOSIS IN AN IMMUNOCOMPROMISED PATIENT IN A TERTIARY PAEDIATRIC HOSPITAL

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Background:

Nocardia spp is a slow growing, weakly acid-fast, gram positive bacteria that cause a variety of clinical disease in humans. Patients who are immunocompromised are at the greatest risk for acquiring the infection and developing disseminated disease with higher mortality. Recognition of this pathogen as a cause of pneumonia in immunocompromised patients is essential for early diagnosis and treatment.

Aims:

To present a case of *Nocardia farcinica* pneumonia in an immunocompromised patient and discuss the risk factors, clinical presentation and management, with a focus on the challenges of diagnosis of this infection.

Methods:

Case report and review of literature.

Results:

A 15 year old girl with newly diagnosed juvenile myelomonocytic leukaemia-like myeloproliferative neoplasm presented with chronic cough and computed tomography findings of left lower lobe "tree-in-bud" appearance and a solitary right lung nodule, which was initially suspicious for metastases. Bronchoscopy with bronchoalveolar lavage and biopsy of the lung nodule were performed. Diagnosis of pulmonary nocardiosis was confirmed when the tissue culture of the lung biopsy sample eventually grew *Nocardia farcinica*. She was treated with a course of sulfamethoxazole trimethoprim with good response.

Conclusion:

Nocardiosis must be a consideration for indolent pulmonary infections in paediatric immunocompromised patients. Diagnosis can be challenging as it may present similarly to other infections or even metastases. This case highlights the importance of understanding its microbiological properties and clinical features, and underscores the potential need for an

invasive procedure, such as biopsy, for definitive diagnosis of suspected Nocardiosis in an immunocompromised patient.

WSPID19-0441 E-Poster Viewing - 6-8 November Infections in the Immunocompromised Host and Transplant Patients

RESPIRATORY TRACT MICROBIOME IN CHILDREN UNDERGOING HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT) DURING EPISODES OF FEVER

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Background:

Respiratory tract microbiome (RTM) in children with HSCT has not been characterized, particularly during febrile episodes and specifically, the differences in between viral respiratory infections (VRI) and bacterial infections (BI).

Aims:

To compare RTM during episodes of fever (with VRI and BI) in children undergoing HSCT

Methods:

Prospective study in children< 18 years of age with cancer and HSCT, admitted because of fever at National Bone-Marrow Transplant Centre, Hospital Calvo-Mackenna, Chile (April 2016-May 2019). Physical examination, laboratory, blood and urine cultures, nasopharyngeal swab for viral pathogens multiplex PCR (Filmarray Respiratory-Panel©) and 16S RNA sequencing for bacterial microbiome was performed. Clinical outcomes were evaluated:upper(URTI) v/s lower respiratory tract infection(LRTI), length of hospital stay, oxygen requirements, mechanical ventilation and PICU admission.

Results:

Thirty four febrile episodes were enrolled in 28 patients. Median age was 7 years, 56%(19) male. 65%(22) cases were VRI(+), 26%(9) BI and 17%(6) undetected etiologies. In VRI episodes, LRTI (13 v/s 1;p<0.01) were more frequent and more days-post-transplant (135 v/s 14;p<0.01); a trend was observed towards more URTI and shorter hospital stay(not statistically significant). Microbiome in VRI showed a higher significant abundance of *Planctomyces limnophilus*(p<0.02) and *Lactobacillus zeal*(p<0.04) whereas in BI *Streptococcus infantis* (p<0.001), *Streptococcus pneumoniae*(p<0.006), *Haemophilus* spp(p<0.007) were significantly higher.

Conclusion:

To our knowledge, this is the first report about microbiome differences in VRI and BI in children with HSCT and episodes of fever. This finding might suggest a possible role of the RTM as a possible marker of the type of infection, risk or severity in this susceptible population (FONDECYT Grant#1171795).

WSPID19-0460 E-Poster Viewing - 6-8 November Infectious Diseases in Natural and Social Disaster situations

COMMUNICABLE DISEASES FOLLOWING NATURAL DISASTERS; RISK ASSESSMENT AND PRIORITY INTERVENTION

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Background:

The relationship between natural disasters and communicable diseases is frequently misconstrued. The risk for outbreaks is presumed to be very high in the chaos that follows natural disasters, likely derived from a perceived association between dead bodies and epidemic. The availability of safe water and sanitation facilities, the degree of crowding, the underlying health status of the population, and the availability of healthcare services all interact within the context of the local disease ecology to influence the risk for communicable diseases and death in the affected population.

Aims:

The communicable diseases have been associated with populations displaced by natural disasters. These CD should be considered when post disaster risk assessments are performed.

Methods:

A systematic and comprehensive evaluation identify 1) endemic and epidemic diseases that are common in the affected area; 2) living conditions of the affected population, including number, size, location, and density of settlements; 3) availability of WSAH facilities; 4) underlying nutritional status and immunization coverage among the population; and 5) degree of access to healthcare and to effective case management.

Results:

Based on displaced populations that have poor access to basic needs, many favorable for disease transmission, must be addressed immediately with the rapid reinstatement of basic services. CD risk assessment can determine priority diseases for inclusion in the surveillance system and prioritize immunization and vector-control campaigns.

Conclusion:

Conclude that review the communicable diseases likely to be important, and establish priorities to address communicable diseases in disaster settings. The risk factors for outbreaks after disasters are associated primarily with population displacement.

WSPID19-0027 E-Poster Viewing - 6-8 November Miscellaneous

RELATIONSHIP BETWEEN EXPOSURE TO MALARIA AND HAEMOGLOBIN LEVEL OF CHILDREN 2–9 YEARS OLD IN LOW MALARIA TRANSMISSION SETTINGS OF ETHIOPIA Z.B. Koricha¹, Y.Y.E. Yihdego², D. Emana³, D. Feyissa⁴, E. Kebede⁵, D. Yewhalaw⁶ ¹Jimma University, Health- Behavior and Society, Jimma, Ethiopia ²Abt Associates- Africa Indoor Residual Spraying, IRS department, Accra, Ghana ³Jimma University, Medical Laboratory Sciences and Pathology, Jimma, Ethiopia ⁴Jimma Zone Health office, Laboratory, Jimma, Ethiopia ⁵Jimma University, Laboratory, Jimma, Ethiopia ⁶Jimma University, Infectious and tropical diseases, Jimma, Ethiopia

Background:

In the context of reduced transmission of malaria, it is essential to examine the association between exposure to malaria and haemoglobin level.

Aims:

This study measured the Haemoglobin level of children 2–9 years of age and examined its association with malariometric indices.

Methods:

A cross sectional study was conducted, during June 2016, on 763 children 2–9 years old, sites representing different malaria transmission settings in Ethiopia. Haemoglobin concentration was determined using HemoCue analyzer. Malariometric indices (splenomegaly rate, parasite rate and serological marker) were measured.

Results:

The overall prevalence of anaemia was 17.3% in the study population. Mild, moderate and severe anaemia accounted for 7.3%, 7.2% and 2.8% respectively. Of the children with anaemia (132), only 5.3% had malaria parasitaemia. The prevalence of malaria parasitaemia was 3.6%, 9.1% and 0.0% among children with mild, moderate and severe anaemia, respectively. Malaria reactive antibody and anaemia co-occurred in 3.13% (21/672) of the samples. Seroprevalence and parasitaemia did not have significant association with anaemia (p > 0.05). However, splenomegaly was significantly associated with increased risk of anaemia (p = 0.001). Anaemia was significantly higher among children 2–4 years old (22.2%), and children living in households without any insecticide treated bed net (34.0%). The prevalence of anaemia was lower by 55.0% among children living in households with at least one net (AOR = 0.45, 95% CI: 0.21–0.96).

Conclusion:

Repeated exposure to malaria infections (as measured using serological marker) was less likely to contribute to development of anaemia among children in this study setting.

WSPID19-0158 E-Poster Viewing - 6-8 November Miscellaneous

PERCEPTIONS AND EXPERIENCES OF STAKEHOLDERS REGARDING CLINICAL EDUCATION IN A NAIROBI SCHOOL OF NURSING F. Wambu¹

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Background:

Social accountability in professional education has been foregrounded; especially since the 2010 publication of the Lancet Commission which challenged the relevancy of health professional education in addressing current health challenges. The theory- practice gap in nursing education is such a concern as it impacts on the clinical competence of nurses and thus the health outcomes of patients (De Swardt et al 2012).

Few studies have addressed the theory- practice gap and competency assessment phenomenon from key stakeholder viewpoints (Zannini et al 2010).

Aims:

This study explored how the stakeholders ((lecturers, charge nurses and clinical preceptors) worked collaboratively to achieve the stated clinical outcomes for the diploma in nursing curriculum

Methods:

This qualitative study used semi- structured interviews and focus group discussions. Purposive sampling of stakeholders included the 3rd year student nurses, charge nurses, preceptors and nurse lecturers.

Results:

Four themes emerged from nursing students . They perceived clinical education as offering student advocacy; peer reciprocity; opportunity for self-directed learning; but found theory-practice disparity. For preceptors it signified role overload; identification of teachable moments; and opportunities to build relationships. Nurse lecturers identified issues related to ownership of clinical learning; complexity of the clinical learning environment; and theory-practice disparity. The charge nurses reported that clinical education functioned as a 'ward culture moderator'; offered opportunity for leadership and education; and partnering and collaboration.

Conclusion:

Stakeholders suggested some insightful ideas to improve clinical education. A suggestion was to have trained clinical instructors who would help the institution bridge the existing theory-practice gap.

WSPID19-0205 E-Poster Viewing - 6-8 November Miscellaneous

SPECTRUM OF PAEDIATRIC GENITAL LESIONS, A HOSPITAL BASED CLINICAL STUDY IN NEPAL; INFECTIONS MORE FREQUENT THAN OTHERS

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Background:

Genital dermatoses are less common problems. These are influenced by external environment and personal habits. Pediatric genital lesions are less explored and should be regarded as separate entity from adult because of differences in clinical presentation, treatment and prognosis.

Aims:

This study was carried out to describe the clinical characteristics of genital lesions in children.

Methods:

This was hospital-based, prospective, cross-sectional study of dermatology department, teaching hospital, Kathmandu between June 2016-May 2017. Purposive sampling technique was used and children below 15 years, fulfilling the inclusion criteria were enrolled in study. Any lesions in genitalia were defined as genital dermatoses. The recorded details were analyzed using Microsoft Excel.

Results:

Sixty patients were enrolled in study with equal M:F ratio. The age ranged 6 months to 15 years with mean of 7.6 years. Majority of the patients were of low socio-economic status. Family history was present among one third. Itching (54%) was the most common followed by blisters/sores (25%) and change in color of skin (10%). Sixteen types of diseases were encountered and classified into infections (28), inflammation (26) and benign variants (6). Among infections, scabies was more predominant followed by candidiasis. Lichen sclerosus was exclusively seen in females. The average duration of the infectious dermatoses was 3.5 days. Common sites for male dermatoses was shaft of penis whereas labia majora in female.

Conclusion:

Infectious diseases more prevalent in children probably due to various intrinsic and extrinsic factors. Our study suggests the need for health education, proper sanitation and better nutrition.
WSPID19-0230 E-Poster Viewing - 6-8 November Miscellaneous

CLINICAL AND LABORATORY FEATURES OF KIKUCHI-FUJIMOTO DISEASE IN CHILDREN IN 10-YEAR REVIEW.

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Background:

Kikuchi-Fujimoto disease (KFD) is a self-limiting necrotizing lymphadenitis that is reported throughout the world. It is most common among young female population; however, children are also affected. Most of the cases resolve spontaneously and some cases may relapse, although the recurrence rate tend to vary in different reports.

Aims:

In our analysis we aimed to analyse recurrence rate among KFD.

Methods:

We performed a retrospective analysis of records of children (0 to 18 years) with confirmed diagnosis of KFD admitted at the Pusan National University Children's Hospital during the period of January 2008 and January 2019.

Results:

Of 176 patients with suspected Kikuchi-Fujimoto disease only 125 were included in review as being confirmed by histopathology. Median age was 13 years (3-18). Male to female ratio was 1:1.11. Majority of patients had fever – 103/125 (82.4%), presented with lymphadenopathy – 64/124 (51.2%). Three patients had skin rash (2.4%), 17(13.6) - headache and 12 (9.6%) had nausea and vomiting. Erythrocyte sedimentation rate, highly sensitive C-reactive protein and lactate dehydrogenase levels were increased in 76.8%, 64.4% and 100% cases, respectively. Absolute neutrophil count and absolute lymphocyte count below 1.500/µL was observed in 41.5% and 50.4% of cases. Only two patients presented with axillary location of lymphadenopathy. Of all remaining cervical lymphadenitis biopsies 37 (29.6%) were performed on the left side and 35 (28.0%) on right. 15 patients (12.0%) presented with recurrent lymphadenitis.

Conclusion:

Our results do not show higher recurrence rate of KFD among children, however it may be due to lost to follow up patients.

WSPID19-0390 E-Poster Viewing - 6-8 November Public Health and Epidemiology: Gram-positive infections: MSSA, MRSA

COMPARATIVE EVALUATION OF CONVENTIONAL VERSUS POLYMERASE CHAIN REACTION FOR DETECTION OF METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS ISOLATED FROM BLOOD STREAM INFECTIONS

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Background:

Staphylococcus aureus (S.aureus) is one of the major resistant pathogens causing nosocomial and community acquired blood stream infections. Emergence of methicillin resistance in *S. aureus* poses a serious challenge to clinicians and microbiologists alike for effective management. Rapid, direct detection of Methicillin Resistant Staphylococcus aureus (MRSA) for diagnostic purposes contributes not only to lowering of morbidity and mortality but also to check upon its spread in health care setting.

Aims:

The aim of this study was to determine antimicrobial susceptibility pattern of *S. aureus* from blood culture specimens, determine MRSA by cefoxitin disc diffusion method and detect *mecA* gene among them by Polymerase chain Reaction(PCR) thus comparing the two.

Methods:

Total of 139 blood samples for bacteriological culture and sensitivity to Department of Microbiology for the period of one year was studied. *S. aureus* identification, isolation and antimicrobial susceptibility pattern was determined by the standard microbiological techniques according to Clinical and Laboratory Standards Institute(CLSI) guidelines. Using cefoxitin disc, isolates were classified as methicillin sensitive or resistant. Conventional PCR was performed to detect *mecA* gene among them.

Results:

Out of 139 *S. aureus* isolates cefoxitin disc diffusion showed 48.9% MRSA and 51.1% by PCR. Strength of kappa agreement was moderate among cefoxitin disc diffusion and PCR

Conclusion:

Prevalence of MRSA is a great matter of concern. Although cefoxitin disc diffusion method and PCR documents almost same range of MRSA with moderate degree of agreement between them, molecular methods should be utilized to avoid false negative results and to track trends of MRSA prevalent locally.

WSPID19-0208 E-Poster Viewing - 6-8 November Public Health and Epidemiology: Viral infections

VARICELLA ANTIBODY BECAME WEAK IN SCHOOL-AGED CHILDREN: EVIDENCE FROM THE SERO-EPIDEMIOLOGY SITUATION IN WEN ZHOU, CHINA

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Background:

In recent years, outbreaks of varicella have continued to occur, and the level of immune antibody and its protective effect for school-aged children in Wen Zhou, China, remains unclear.

Aims:

We aimed to determine the level of age-specific immune antibody of varicella zoster virus (VZV)-IgG among children aged 1-14 years.

Methods:

Our study investigated the epidemiological characteristics of varicella from 2010 to 2018, and assessed the change of varicella prevalence in the age-specific distribution in the past 2 years.12 people were randomly sampled at each age to monitor VZV immunity levels among healthy children aged 0-14 in 2018. In September 2018, 12 hospitalized children 11yr old with varicella, compared immunity levels with 9 children without varicella from the same class.

Results:

The numbers of three age groups (7-9yr old;10-12yr old;13-15yr old) in 2017 and 2018 showed obvious growth compared with 2010-2016. In 2017, varicella children were mainly distributed in 8-9 age group (393/1941), while in 2018, children in 11-13 age group (603/1936). For the laboratory investigations, of 9 healthy classmates' serum samples, the average concentration of VZV-IgG is 491.22mIU/mL. While serum samples from 168 healthy children aged≤14, the concentration of VZV-IgG was lowest in children aged 8, with an average of 90.45 mIU/mL.









years

Conclusion:

varicella cases happened in school-aged children significantly increased in the past 2 years. Laboratory findings also showed that concentrations of VZV-IgG in school-aged children could not protect children from chickenpox yet, when varicella broke out. vaccine-induced VZV antibody soon became weak in children after vaccination for several years.

WSPID19-0409 E-Poster Viewing - 6-8 November Public Health and Epidemiology: Viral infections

IMPACT OF CO-INFECTIONS WITH ENTERIC PATHOGENS ON CHILDREN SUFFERING FROM ACUTE DIARRHEA IN TUNISIA

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Background:

Acute diarrhea is a global health problem, resulting in high morbidity and mortality in children. It has been suggested that enteric pathogen co-infections play an important role in gastroenteritis, but most research efforts have only focused on a small range of species belonging to a few pathogen groups.

Aims:

This study aimed to determine the prevalence, and risk factors of enteric viruses (EVs) in children with AGE in Tunisia.

Methods:

Stool samples collected from children under-5 from three different hospitals between January 2015 and December 2016 were analyzed using molecular methods for the presence of two EVs (group A rotavirus [RVA] and human adenovirus [HAdV]).

Results:

Among the 150 samples analyzed, 88 (58.66%) were positive for at least one EV. The most prevalent was RVA (49.33%), followed by HAdV (9.33%). Mixed infections were found in 4 cases (5.4%).

Conclusion:

Although it is clear that RVA has an overwhelming impact on diarrhea illnesses in children, coinfection with other enteric pathogens appears to also aggravate diarrhea severity. These findings should serve as evidence for public health services when planning and developing intervention programs.

WSPID19-0436 E-Poster Viewing - 6-8 November Public Health and Epidemiology: Viral infections

GENOTYPING OF RESPIRATORY SYNCYTIAL VIRUS AMONG INFLUENZA-LIKE ILLNESS AND SEVERE ACUTE RESPIRATORY INFECTION CASES AMONG CHILDREN IN THE PHILIPPINES, 1999-2016

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Background:

Respiratory Syncytial Virus is the leading cause of severe lower respiratory infection and therefore, a major threat to global health.

Aims:

This study determines the characteristics of HRSV among influenza-like illness (ILI) and severe acute respiratory infection (SARI) cases of children in the Philippines.

Methods:

The Philippine National Influenza Centre collected oropharyngeal swab and nasopharyngeal swab samples from patients under the age of five who presented with ILI and SARI for the period of 1999-2016. These swabs have been examined for HRSV subgroup by multipex real-time qRT-PCR. Sequencing and phylogenetic analysis was used to determine the genotype of HRSV isolates.

Results:

A total of 1,055 samples were systematically selected and tested. Of these samples 123 were HRSV-positive at 11.7 % prevalence rate, and 58.5% (72/123) were classified as HRSV-A. Six genotypes were identified, which includes GA2, GA5, NA1 and ON1 for HRSV-A; and BA2 and BA9 for HRSV-B. Most HRSV related cases were significantly associated with pneumonia and bronchiolitis.

Conclusion:

The pattern of HRSV activity in the Philippines resembles the transmission of HRSV globally. This data can be used to improve the diagnosis and patient management of respiratory infections in the Philippines.

WSPID19-0217 E-Poster Viewing - 6-8 November Tick-borne Infections

CLINICAL AND LABORATORY PROFILE OF SCRUB TYPHUS IN CHILDREN

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Background:

Scrub typhus, a rickettsial infection caused by Orientia tsutsugamushi, is an important cause of undifferentiated fever. It is transmitted by tromboculid mites and is endemic to regions of Asia including Nepal. It leads to generalized vasculitis which may cause multisystemic disease.

Aims:

To study clinical and laboratory features in children diagnosed with scrub typhus in a tertiary hospital.

Methods:

A retrospective chart review was undertaken. 24 children aged 2 months to 14 years, admitted to the pediatric ward and PICU with scrub typhus from April 2017 to October 2018 were reviewed. Diagnosis was confirmed via IgM antibody positive ELISA. Information was reviewed including age, demographics, clinical manifestations, laboratory parameters, and outcome. 4 patients were excluded due to missing records.

Results:

Out of 20 children, 13 were female (65%) and mean age was 7.4 years. 6 children (30%) required PICU care. Fever was present in 100% children, abdominal pain in 45 %, vomiting in 30%, pneumonia in 25%, shock in 20%, hepatomegaly in 15%, oedema in 10%, oliguria in 10%, jaundice in 5%, rashes in 5%, signs of meningeal irritation in 5%, and cerebellar signs in 5%. Average hospital stay was 9 days. 1 child was mechanically ventilated and all children recovered. Leucocytosis was seen in 27%, leucopenia in 11%, anaemia in 46.6% (4 requiring transfusion), thrombocytopenia in 38.8%, and raised CRP in 88.2%.

Conclusion:

Paediatric scrub typhus shows various clinical manifestations requiring prolonged admission and intensive care. It should be considered when evaluating any child in Nepal presenting with undifferentiated fever.

WSPID19-0107 E-Poster Viewing - 6-8 November Vaccination: Antibacterial vaccines

SEROTYPES OF PNEUMOCOCCI ISOLATED FROM INVASIVE INFECTIONS OF CHILDREN AFTER THE NATIONAL IMMUNIZATION PROGRAM (NIP) IMPLEMENTATION OF EXTENDED-VALENCY PNEUMOCOCCAL CONJUGATE VACCINES IN KOREA, 2014-2017

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Background:

PCV10 and PCV13 have been introduced into Korea as optional vaccines in 2010 and implemented into NIP in May 2014.

Aims:

To analyze the serotypes of pneumococci isolated from invasive infections of children after the implementation of PCVs into the NIP

Methods:

This is a retrospective study of children <18 years of age at 26 tertiary hospitals located throughout the Republic of Korea. Pneumococcal isolates from patients with invasive pneumococcal disease (IPD) were collected prospectively from 2014 to 2017. Serotypes were determined by Quellung reaction.

Results:

A total of 117 isolates were available for serotyping. Most common serotypes were 10A (n=23, 19.7%), followed by 19A (n=12, 10.3%), 12F and 15A (n=9, 7.7% each), 15C and 23A (n=8, 6.8% each), 15B and 35B (n=6, 5.1% each), 23B (n=5, 4.3%), and 11A (n=4, 3.4%). PCV7 serotypes accounted for 2.6% (3 isolates) of the isolates, additional 3 serotypes in PCV10 (1,5, and 7 F) accounted for 1.7% (2 isolates), and PCV13-specific serotypes (3, 6A, and 19A) accounted for 12.0% (14 isolates). Ninety-eight isolates (83.8%) were non-vaccine serotypes (NVTs) including one non-typeable isolate. PCV10 additional types were not isolated after 2015. Between 2014 and 2016 PCV13-specific serotypes were decreasing (12.5% [3/23] in 2014, 11.1% [3/27] in 2015 and 5.7% [2/35] in 2016), but showed increasing tendency in 2017 (18.8% [6/32]). Serotype 19A was isolated persistently, while serotype 6A was rarely isolated.

Conclusion:

The proportion of vaccine serotypes among IPD isolates decreased than before, which is believed to be the result of NIP implementation of extended-valency PCVs in Korea.

WSPID19-0139 E-Poster Viewing - 6-8 November Vaccination: Antibacterial vaccines

AN ESTIMATION OF THE CLINICAL AND ECONOMIC IMPACT OF INTRODUCING A PNEUMOCOCCAL CONJUGATE VACCINE IN INDONESIA

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Background:

Pneumococcal conjugate vaccines (PCV) (13-valent; PCV13 and 10-valent; PCV10) introduced as part of a national immunization program (NIP) have significantly reduced the burden of pneumococcal disease (PD), globally. Indonesia introduced PCV13 in 2017 in 2 districts.

Aims:

This study assesses the potential population health and economic impact of expanding PCV access in Indonesia.

Methods:

A decision-analytic model was adapted to estimate population health outcomes and costs over 5 years. Current disease incidence for age- and serotype-specific invasive pneumococcal disease (IPD), pneumonia and acute otitis media (AOM) was obtained from the published literature. The scenarios of initiating PCV13 vs. PCV10 and no pneumococcal vaccination were compared using the disease trends from PCV13 impact in the UK and PCV10 impact in the Netherlands. Vaccine cost scenarios were conducted for PCV13 (\$2.90 to \$14.50) and PCV10 (\$3.05 to \$12.85).

Results:

PCV13 was estimated to avert 78,218 deaths and 3.9 million cases of PD compared with no vaccination and ranged from highly cost-effective (USD\$1,166/QALY) to cost-saving. Between the 10- or 13-valent PCV, we estimated PCV13 to reduce an incremental 49K cases of IPD, 1.8M cases of pneumonia and AOM, and 46,061 deaths, driven by 19A reduction under PCV13. Despite the incremental acquisition costs of PCV13 (range: \$5.7M-\$95.2M), PCV13 reduced medical costs by 19% over PCV10, resulting in a net cost-savings of \$407M-\$304M under a PCV13 NIP.

Conclusion:

Introducing PCV in Indonesia NIP will be a cost-effective strategy compared to no vaccination. PCV13 is estimated to have robust public health impact and be a cost-saving compared with PCV10.

WSPID19-0140 E-Poster Viewing - 6-8 November Vaccination: Antibacterial vaccines

ESTIMATING THE POPULATION HEALTH AND ECONOMIC IMPACT OF INTRODUCING A PNEUMOCOCCAL CONJUGATE VACCINE IN MALAYSIA

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Background:

Pneumococcal disease is a vaccine preventable bacterial infection that causes potentially fatal conditions. Malaysia is considering making pneumococcal vaccinations mandatory for children under two years of age.

Aims:

This study assesses the potential impact of adapting the available pneumococcal conjugate vaccines (13-valent and 10-valent) on population health and related costs in Malaysia.

Methods:

A previously published decision-analytic model was adapted. Current disease incidence for invasive pneumococcal disease (IPD), pneumonia (PNE) and acute otitis media (AOM) was obtained from the published literature. For each program, health outcomes and health-care costs were estimated. The scenarios of initiating PCV13 vs PCV10 and the status quo (no pneumococcal vaccine) were compared. Finland serotype trends were used to model PCV10 clinical impact and UK serotype trends for PCV13. The current analysis is the societal perspective over 5 years.

Results:

PCV13 use for those ≤2 years old in Malaysia has the potential to avert 125,660 cases of pneumococcal disease compared with PCV10. PCV13 is estimated to cost an incremental US\$89,893,794 in the acquisition of vaccine. This is coupled with a cost reduction of - US\$140,611,502 on pneumococcal disease-related medical care and lost productivity. Compared with PCV10, PCV13 shows cost-saving potential. Compared with the status quo of no vaccination, the incremental cost per QALY gained to introduce PCV13 was US\$1,958.

| | PCV13 | PCV10 | PCV13 vs PCV10 |
|--------------------------------|---------------|----------------------|----------------|
| Number of Cases | | | |
| IPD | 2,923 | 3,623 | -700 |
| Pneumococcal PNE | 1,366,928 | 1,382,485 | -15,557 |
| AOM | 329,785 | 438,951 | -109,166 |
| Deaths | 4,991 | 5,229 | -238 |
| | | Total Cases Averted | -125,660 |
| Vaccine acquisition cost, USD | 331,902,426 | 242,008,632 | 89,893,794 |
| Costs of medical care, USD | | | |
| IPD | 22,697,412 | 27,908,074 | -5,210,662 |
| Pneumococcal PNE | 1,026,986,354 | 1,041,878,641 | -14,892,287 |
| AOM | 187,936,951 | 249,178,062 | -61,241,111 |
| Cost of productivity lost, USD | 786,187,789 | 845,455,231 | -59,267,442 |
| | | Total Cost Reduction | -\$140,611,502 |
| Total Costs, USD | 2,355,710,932 | 2,406,428,640 | -50,717,708 |
| Total QALYs Gained | 127,761,531 | 127,760,784 | 747 |
| Cost/QALY | | | PCV13 Dominant |

Conclusion:

Introduction of a PCV is found to have high public health impact in Malaysia. PCV13 is highly cost effective in the prevention of pneumococcal disease and improving quality of life compared to no PCV and is cost-saving compared with PCV10.

WSPID19-0186 E-Poster Viewing - 6-8 November Vaccination: Antibacterial vaccines

REGIONAL PREVALENCE OF NON-VACCINE SEROTYPES OF STREPTOCOCCUS PNEUMONIAE ISOLATED FROM CHILDREN WITH INVASIVE PNEUMOCOCCAL DISEASE ADMITTED TO A TERTIARY CARE PEDIATRIC HOSPITAL IN SOUTH INDIA <u>S. Athmanathan¹</u>

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Background:

Invasive pneumococcal disease (IPD) is a major cause of morbidity and mortality worldwide, especially in children under 5 years of age. Several pneumococcal serotypes have been associated with IPD and vary based on geographical location, population age and over time.

Aims:

This study aims to detect the serotypes involved, especially the non-vaccine serotypes of Streptococcus pneumoniae, isolated from children with IPD admitted to a tertiary care pediatric hospital in South India.

Methods:

A total of 12 strains of Streptococcus pneumoniae isolated from 12 children (age: 2 months to 59 months) admitted for IPD, over a period of 18 months, were included in this study. Identification of the strains was performed using BD Phoenix 100 (Automated Microbial Identification and Susceptibility system, Becton Dickinson and Company, Maryland, USA). Pneumococcal isolates were serotyped by the Quellung method at the WHO reference laboratory at Christian Medical College, Vellore, Tamil Nadu, India.

Results:

IPD cases presented with Bacteremia/Sepsis(n=7), Pyrexia of unknown origin(n=2), Meningitis/Sepsis(n=2) and Pneumonia/Sepsis(n=1). Serotypes identified were: one each of 7, 14,18B, 19A, 19F, 23B, 28, 29 and 40 while one unidentified serotype. Two isolates belonged to serotype 5. Non-Pneumococcal vaccine (PCV 13: Pneumococcal vaccine-PREVENAR 13) serotypes were: one each of serotype 7, 18B, 23B, 28A, 29, 40 & one unidentified serotype. The prevalence of non-vaccine serotypes was 58.4%.

Conclusion:

Non vaccine (PCV13) serotypes were seen often (58.4%) in this region. These findings may have important implications during the introduction of PCV 13 vaccine in this region.

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WSPID19-0247 E-Poster Viewing - 6-8 November Vaccination: Antibacterial vaccines

DETERMINING THE VACCINE EFFECTIVENESS (VE) OF THE 13-VALENT PNEUMOCOCCAL CONJUGATE VACCINE (PCV13) AGAINST SEROTYPE 3: A MODELLING APPROACH

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Background:

Over 90 different serotypes of *Streptococcus pneumoniae* exist, causing a variety of pneumococcal diseases. While PCV13 contains a serotype 3 (ST3) antigen, evidence of vaccine effectiveness (VE) has varied, with some studies suggesting 0% VE. Some countries using PCV13 have reported continued circulation of ST3. However, a recent meta-analysis estimated VE of ST3 IPD (VE_{IPD}) to be 63.5%.

Aims:

The objective of this study is to recalibrate a dynamic model to determine ST3 VE.

Methods:

A published model leveraging United Kingdom surveillance data from 2001-2017 was recalibrated to estimate ST3 VEIPD (direct protection) and carriage VE (indirect protection; VEcarriage). Scenarios included: (1) PCV13 has 0% VEcarriage and VEIPD; (2) 63.5% VEIPD; VEcarriage calibrated based on observed IPD incidence; and (3) VEIPD and VEcarriage calibrated. VE estimates for all other serotypes were as seen in the previous analysis.

Results:

Scenario 2 had strongest fit in 0-2 year-olds estimating VEcarriage= 6.1% (Figure 1). Calibration of VEIPD (30.1%) and VEcarriage (19.1%) in scenario 1 was also a strong fit. Assuming PCV13 had 0% VEcarriage and VEIPD estimated that 2017 ST3 IPD incidence would be 108% higher than was observed in 0-2 year olds (2.14 vs 1.03-per-100,000). This would correspond to 92 additional ST3 cases in ages 0-2, and ~1,800 cases over all ages.



Figure 1: Estimated versus Observed Serotype 3 Incidence in 0-2 Year Olds in The United Kingdom

Conclusion:

The model calibration fit best when VEIPD and VEcarriage estimates were greater than 0%. Predicted VEIPD matched well to a meta-analysis of ST3 effectiveness. Further research is necessary to further understand the complex transmission dynamics and evolution of serotype epidemiology.

WSPID19-0251 E-Poster Viewing - 6-8 November Vaccination: Antibacterial vaccines

DYNAMIC TRANSMISSION MODELING OF PNEUMOCOCCAL CONJUGATE VACCINE AND POTENTIAL DOSING REDUCTION IN THE UNITED KINGDOM

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Background:

7- and 13-valent pneumococcal conjugate vaccines (PCV) have been an effective part of routine immunization using a 2+1 schedule in the United Kingdom (UK) for the previous 11 years. Studies are ongoing to evaluate effects of removing a dose from the primary series.

Aims:

Our objective is to model the public health impact of reducing from a 2+1 to a 1+1 PCV13 schedule.

Methods:

A dynamic transmission model was developed using UK serotype-specific invasive pneumococcal disease (IPD) surveillance data from 2001-2016. Pneumonia and otitis media cases were calculated assuming a relative proportion to IPD. Cases were calculated over a 5-year period for the entire UK population. Scenario analyses were undertaken to evaluate the impact of parameter uncertainty.

Results:

Compared with maintaining the 2+1 schedule, reducing to 1+1 was predicted to incur 8,561-25,394 additional cases of pneumococcal disease, 249-665 more deaths, and £9.9-£26.8MM additional disease-related medical costs (Table 1) across all age groups over the 5-year period. Serotype 19A IPD was responsible for 77-95% of incremental cases.

Conclusion:

Results suggest that removal of an infant priming dose would increase pneumococcal disease cases and medical costs compared with maintaining a 2+1 schedule, with much of this increase from resurgence in 19A. It is important that policymakers consider potential public health impact when considering modifications to vaccination strategies.

WSPID19-0260 E-Poster Viewing - 6-8 November Vaccination: Antibacterial vaccines

COST-EFFECTIVENESS OF A NATIONAL IMMUNIZATION PROGRAM (NIP) WITH THE 13-VALENT (PCV13) PNEUMOCOCCAL CONJUGATE VACCINE COMPARED WITH THE 10-VALENT (PCV10) PNEUMOCOCCAL CONJUGATE VACCINE IN SOUTH KOREA H.Y. Kim¹, S.B. Park¹, S.M. Lee², H.J. Kim¹, E.S. Kang², <u>M. Wasserman³</u> ¹Pfizer Ltd., Medical and Scientific Affairs, Seoul, Republic of Korea ²Pfizer Ltd., Health and Value, Seoul, Republic of Korea ³Pfizer Inc., Health Economics and outcomes Research, New York, USA

Background:

In South Korea, the 7-valent pneumococcal conjugate vaccine was introduced in 2003 and was replaced with PCV10 and PCV13 in 2010. In 2014, a physician choice infant NIP using a 3+1 schedule with PCV10 and PCV13 was implemented to prevent invasive pneumococcal disease (IPD) and non-invasive pneumococcal acute otitis media and pneumonia.

Aims:

The objective of this study was to perform a cost-effectiveness evaluation to elucidate which vaccine will provide greater impact if included in an NIP.

Methods:

Using an established model, we estimated the impact of introducing either PCV13 or PCV10 into the South Korean NIP in 2015. Vaccine impact was estimated based on fit regression equations to the historic impact of PCV13 from 2010 to 2015 in Korea given high uptake of PCV13, and PCV10 impact was estimated and varied based on experiences in countries with PCV10 NIPs; notably Finland and The Netherlands. Model inputs were derived from the published literature and the Korean Health Insurance Review and Assessment (HIRA) database.

Results:

In the base case, over 5 years PCV13 was estimated to avert 550,000 more cases of pneumococcal disease compared to PCV10, driven by broader serotype coverage and less replacement from serotypes 3 and 19A. This translated to a net cost-savings of \$24.3 million USD despite PCV13's higher cost. Sensitivity analysis found ICERs ranging from cost-saving to \$7,300 USD per QALY.

Conclusion:

An NIP using PCV13 was estimated to have a more substantial public health impact and be cost-saving compared to a program with PCV10 due to broader serotype coverage.

WSPID19-0344 E-Poster Viewing - 6-8 November Vaccination: Antibacterial vaccines

POTENTIAL PUBLIC HEALTH IMPACT OF THE SWITCH BACK TO USE OF THE 13-VALENT INFANT PNEUMOCOCCAL CONJUGATE VACCINE IN BELGIUM ON CHILDREN UNDER 18 YEARS

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Background:

Globally, 13-valent (PCV13) and 10valent (PCV10) pneumococcal vaccines have resulted in significant declines in pneumococcal disease. After 4 years of Belgium using PCV13 in regional infant immunization programs, the Flanders and Wallonia/Brussels regions changed to PCV10 in 2015/2016. From 2015 to 2018, increases in invasive pneumococcal disease (IPD) caused by serotype 19A, which is contained in PCV13 but not in PCV10, have been observed. Flanders health officials recently decided to return to use of PCV13.

Aims:

The objectives of this study are to validate an existing forecasting model and estimate impacts from the change back to PCV13.

Methods:

A model was updated using observed IPD incidence trends in Belgium to predict future serotype behavior under PCV13 or continued PCV10 use. IPD data was obtained from the National Reference Laboratory for Pneumococci Surveillance. Hospitalized pneumonia and hospital treated otitis media rates were derived using differentials proportional to predicted IPD rates from observed data in Finland.

Results:

By changing to PCV13 use in the regional immunization programs in Belgium, ~7,000 cases of pneumococcal disease and 9 deaths can be avoided in children <18 years (Table 1).

Table 1. Public health impact of use of PCV13 versus PCV10 in Belgium in children under 18 years, over a <u>10 year</u> timeframe

| Parameter | Under PCV13 use | Under PCV10 use | Avoided with use of PCV13 |
|------------------------------|--------------------|--------------------|---------------------------|
| Cases | | | |
| IPD | 3,912 | 4,211 | 299 |
| Hospitalized Pneumonia | 16,450 | 17,496 | 1,046 |
| Hospitalized Otitis Media | 92,196 | 98,059 | 5,863 |
| Deaths | 72 | 81 | 9 |

Historic observations in Belgium indicate previous estimates on a switch from PCV13 to PCV10 may have been underestimated given the significant increase in 19A IPD cases observed in children <2 years who are vaccinated with PCV10.

Conclusion:

Based on observed incidence in Belgium, the recent decision to switch back to PCV13 in regional pneumococcal vaccination programs is predicted to reduce disease and mortality versus continued use of PCV10.

WSPID19-0384 E-Poster Viewing - 6-8 November Vaccination: Antibacterial vaccines

ASSOCIATIONS BETWEEN GEOGRAPHIC REGION AND IMMUNE RESPONSE VARIATIONS TO PNEUMOCOCCAL CONJUGATE VACCINES IN CLINICAL TRIALS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background:

Geographic region can be an important source of variation in immune response to pneumococcal conjure vaccines (PCV).

Aims:

To examine the difference in antibody responses associated with geographic regions.

Methods:

We conducted a systematic review and meta-analysis examining the difference in antibody responses with geographic regions, compared with each other and with the different PCVs using random effects models.

Results:

A total of 69 trials were included. The ranges of anti-polysaccharide IgG geometric mean concentrations (GMC) were generally higher in Western Pacific (WP), compared to Americas and Europe. Pooled GMC for serotype 4 after given 3 doses in PCV7 in WP was 5.19 ug/mL (95% C.I., 4.85 - 5.53), while studies from Europe was 2.01 ug/mL (95% C.I., 1.88 - 2.14). 98 – 100% of the study population from WP were Asians; whereas studies from Europe reported 97% as White-Caucasian. The IgG GMC ratios among WP versus European regions ranged 1.51 - 2.87 for PCV7; 1.69 - 3.22 for PCV10; and 1.49 - 3.08 for PCV13.

Conclusion:

Overall, we found that studies conducted in WP generally had greater antibody responses than the studies conducted in Americas and Europe. Indications of differences among geographic regions highlight the fact that further research is needed to compare the biologic factors contributing to immune responses, which may affect in vaccination schedules.

WSPID19-0473 E-Poster Viewing - 6-8 November Vaccination: Antibacterial vaccines

ALLERGIC OUTCOMES FOLLOWING ACELLULAR PERTUSSIS VERSUS WHOLE-CELL PERTUSSIS VACCINATION: A RANDOMISED CONTROLLED TRIAL

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Background:

The transition from using whole-cell (wP) to acellular pertussis (aP) vaccines in Australia in the late nineties, coincided with both an increase in lab-confirmed pertussis disease, and an apparent rise in the incidence of food allergies and eczema among young children. Atopic diseases are associated with failure of the developing infant immune system to transition from the in utero 'Th2-skewed' phenotype to a more balanced 'Th1/Th2' phenotype. Early priming with wP may facilitate the healthy transition to a balanced 'Th1/Th2' phenotype.

Aims:

To determine if, compared to the existing pertussis vaccine schedule of 3 priming doses of aP vaccine, a single dose of wP vaccine at approximately 2 months of age, followed by two doses of aP vaccine at approximately 4 and 6 months of age: a) Protects against the development of food allergy. b) Protects against the development of an atopic immunophenotype.

Methods:

Phase IV, multi-site, parallel, adaptive, double-blinded, randomised, controlled trial with a preliminary recruitment of 150 healthy infants (ongoing in Perth, WA) and a total of up to 3000 participants or until a pre-defined stopping rule is met. Randomisation (1:1) will be computer-generated, with allocation concealment using sequentially numbered opaque envelopes. The

primary endpoint is IgE mediated food allergy with evidence of food sensitisation on skin prick test at 12 months old and confirmed (where necessary) by oral food challenge(s).

Results:

This study is currently enrolling participants.

Conclusion:

Mixed wP/aP schedules are anticipated to reduce both, the burden and cost of food allergies, and public health costs from improved pertussis control.

WSPID19-0120 E-Poster Viewing - 6-8 November Vaccination: Antiviral vaccines

IMMUNOGENICITY AND SAFETY OF AN ADJUVANTED INACTIVATED POLIO VACCINE, IPV-AL, COMPARED TO STANDARD IPV, FOLLOWING VACCINATION AT 6, 10, 14 WEEKS AND AT 9 MONTHS

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Background:

An adjuvanted inactivated polio vaccine (IPV-AI), obtained by adsorption of a reduced dose of inactivated poliovirus to an aluminium hydroxide adjuvant, can help mitigate global supply and cost constraints of IPV.

Aims:

To demonstrate non-inferiority of IPV-AI to standard IPV.

Methods:

In a phase 3, observer-blinded, randomised, controlled trial, infants were randomised to receive three IPV-AI (n=502) or IPV vaccinations (n=500) at 6, 10 and 14 weeks of age and a vaccination at 9 months of age. The primary endpoint was type-specific seroconversion, defined as an antibody titre \geq 4-fold higher than the estimated maternal antibody titre and a titre \geq 8, one month after the primary vaccination series.

Results:

Seroconversion rates following primary vaccination at 6, 10 and 14 weeks with IPV-AI or IPV were: poliovirus type 1, 97.1% (IPV-AI) versus 99.0% (IPV); type 2, 94.2% versus 99.0%; and type 3, 98.3% versus 99.6%. IPV-AI was non-inferior to IPV (predefined 10%-point limit). Robust post-9-month booster responses were demonstrated and post-booster geometric mean titres (GMTs) were higher than post-priming GMTs for both vaccines. IPV-AI was well tolerated with a safety profile comparable to that of IPV when administered as primary and booster vaccines. Serious adverse events were recorded for 29 infants (5.8%, 37 events) in the IPV-AI group compared to 28 (5.6%, 48 events) for IPV.

Conclusion:

Non-inferiority of IPV-AI to IPV with respect to seroconversion was confirmed following primary vaccination series at 6, 10,14 weeks for all three polio serotypes, and a robust post-9-month booster response was demonstrated. Both vaccines were safe and well tolerated.

WSPID19-0121 E-Poster Viewing - 6-8 November Vaccination: Antiviral vaccines

IMMUNOGENICITY AND SAFETY OF AN ADJUVANTED INACTIVATED POLIO VACCINE, IPV-AL, FOLLOWING VACCINATION IN INFANTS AT 2, 4, 6 AND AT 15-18 MONTHS

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Background:

An adjuvanted inactivated polio vaccine (IPV-AI), obtained by adsorption of a reduced dose of inactivated poliovirus to an aluminium hydroxide adjuvant, can help mitigate global supply and cost constraints of IPV.

Aims:

To demonstrate non-inferiority of IPV-AI to standard IPV.

Methods:

Phase 3, observer-blinded, randomised, controlled trial conducted in Panama where infants, not previously vaccinated with any polio vaccines, were randomised to receive three IPV-AI (n=400) or IPV vaccinations (n=400) at 2, 4 and 6 months. In an extension trial, subjects were offered a booster vaccination with IPV-AI at 15-18 months.

Results:

Seroconversion rates (defined as an antibody titre ≥4-fold higher than the estimated maternal antibody titre and a titre ≥8) evaluated one month after primary vaccination with IPV-AI or IPV were as follows: poliovirus type 1, 96.1% (IPV-AI) versus 100% (IPV); type 2, 100% versus 100%; and type 3, 99.2% versus 100%. IPV-AI was non-inferior to IPV (predefined 10%-point limit). IPV-AI was well tolerated with a safety profile comparable to that of IPV when administered as a primary vaccine. Robust booster responses were demonstrated and postbooster geometric mean titres (GMTs) were higher than post-priming GMTs. The IPV-AI vaccine was well tolerated when administered as a booster vaccine.
Conclusion:

Non-inferiority of IPV-AI to IPV with respect to seroconversion was confirmed following primary vaccination at 2, 4, 6 months for all three polio serotypes. A robust booster response was demonstrated following vaccination with IPV-AI at 15-18 months in infants primary vaccinated with IPV or IPV-AI. Both vaccines were well tolerated and had similar safety profiles.

WSPID19-0495 E-Poster Viewing - 6-8 November Vaccination: Antiviral vaccines

IF YOUR CHILD IS DIAGNOSED WITH INFLUENZA WILL YOU OR WILL YOU NOT VACCINATE HIM NEXT YEAR?

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Background:

Worldwide, public health institutions recommend influenza immunization to all people 6 months and older as the mainstay preventive measure to control influenza. Nevertheless, influenza vaccine uptake is suboptimal, especially among children.

Aims:

To compare influenza vaccination coverage of influenza-positive and influenza-negative children in two serial influenza seasons.

Methods:

Subjects up to 18 years of age with clinical suspicion of influenza, 10/2017-4/ 2018, with ensuing influenza testing were eligible for inclusion. Subjects were divided into positive-influenza (Antigen/Polymerase chain reaction, respectively) and negative-influenza groups. A follow-up questionnaire exploring the family's 2018-2019 influenza vaccination was completed.

Results:

133 children (74 Male; mean age 4.6, range 0.1-18) who underwent hospital influenza-testing were included. Children diagnosed with influenza were significantly older than their counterparts were (p<0.001). Overall, 47 (35.3%) had a confirmed influenza virus and 16 (12.1%) RSV. While 97.7% of the children were up-to-date with their immunization schedule, only 7.5% of the children received an influenza vaccine. There were no statistically significant differences in influenza vaccine coverage between the two groups in the two influenza seasons; although, there was a statistically significant increase in the overall number of children immunized in 2018-2019. The most common reasons for failure to vaccinate in descending order were *doubt in the vaccines efficacy* (42.9%), do not *have the flu* (17.0%), *too busy* (16.1%) *and side effects* (15.2%), respectively.

A pediatric hospital visit with laboratory-confirmed influenza did not alter the next season's vaccine coverage. Future studies should explore additional means to increase influenza vaccine acceptance.

WSPID19-0023 E-Poster Viewing - 6-8 November Vaccination: Vaccine hesitancy and uptake

MATERNAL KNOWLEDGE AND PERCEPTIONS ABOUT ROUTINE IMMUNIZATION IN A SLUM AREA OF PAKISTAN

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Background:

It was seen that there is a very low rate of children vaccination in the Pakistan especially in the poor community. So we decided to do a study so that we can start a health awareness program and can relate its advantage after that.

Aims:

To know the baseline coverage and potential obstacles for children vaccination before starting a health awareness program.

Methods:

A cross sectional study on immunization coverage in the slum area of Multan, Pakistan was conducted and a total of 312 mothers were interviewed face to face for Knowledge, Attitudes, and Perceptions (KAP).

Results:

Among the children less than 3 years, 33 % fully, 46 % partially and 21 % were not at all immunized. High levels of BCG and OPV zero rates (79%) and low rates of OPV3/DPT3 (48%) and measles (41%) vaccines were found. Majority of the mothers were satisfied with the program. Most of the mothers were aware about the importance of vaccination but were ignorant for the need to complete the schedule. There were many misconceptions and beliefs among the mothers of partial and unimmunized children. The majority were of view that vaccines contain ingredients that will make the children infertile.

Conclusion:

There is a need to enhance the maternal knowledge about the vaccine preventable diseases and importance of completing the immunization schedule. Also the misconception about the vaccines need be specifically addressed.

WSPID19-0250 E-Poster Viewing - 6-8 November Vaccination: Vaccine hesitancy and uptake

ESTIMATING VARIABILITY IN THE IMPLEMENTATION OF A REDUCED DOSING SCHEDULE IN THE UNITED KINGDOM

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Background:

7- and 13-valent pneumococcal conjugate vaccines (PCV) have been an effective part of routine immunization using a 2+1 schedule in the United Kingdom (UK) for the previous 11 years. Studies are ongoing to evaluate effects of removing a dose from the primary series.

Aims:

The objective of this study is to evaluate the local and regional impact of implementation given variation in vaccination rates.

Methods:

A dynamic transmission model was developed using UK serotype-specific invasive pneumococcal disease (IPD) surveillance data from 2001-2016. Vaccination adherence rates were varied to understand the potential disparities and impact across different regions and cities given the reliance of a reduced schedule on booster dose effectiveness.

Results:

In London, where booster dose adherence rates range from 67-91% (mean=84.5%), the change in incidence with a 1+1 schedule compared to the rest of London was 30% higher for all IPD. Specifically for serotype 19A, at 94% uptake the UK on average saw an 18% increase in disease caused by serotype 19A with a 1+1 compared to a 2+1 schedule while London saw a 33.3% increase (RR=1.85).

Results suggest that removal of an infant priming dose would increase pneumococcal disease cases and medical costs compared with maintaining a 2+1 schedule. Cities and regions with lower booster dose adherence are at a particular disadvantage. This has important policy implications specifically for underserved populations when considering a change in vaccination schedule.

WSPID19-0267 E-Poster Viewing - 6-8 November Vaccination: Vaccine hesitancy and uptake

LONG-TERM HEPATITIS B IMMUNITY AFTER DIFFERENT IMMUNIZATION SCHEDULES WITH SANOFI PASTEUR HEXAVALENT DTAP-IPV-HB-PRP~T: A REVIEW.

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Background:

Standalone hepatitis B (HB) vaccines have demonstrated long-term persistence of immunity for up to 40 years and no boosters are recommended in the general population.

Aims:

Objective is to review all published literature on the long-term persistence of immunity against the HB component of Sanofi Pasteur's DTaP-IPV-HB-PRP~T vaccine (Hexyon[®], Hexacima[®], Hexaxim[®]).

Methods:

All published clinical trials with DTaP-IPV-HB-PRP~T vaccine were considered, and the results of 4 clinical trials performed in 3 countries were reviewed for data on persistence of anti-HBs antibodies and on persistence of memory upon HB revaccination challenge.

Results:

Data were available following four different primary immunization schedules: HB standalone vaccine at birth followed by 3 infants doses with DTaP-IPV-HB-PRP~T at 2, 4 and 6 months, with/without toddler dose at 12-24 months, or 3 infants doses with DTaP-IPV-HB-PRP~T at 6, 10, 14 weeks plus toddler dose at 15-18 months preceded or not by HB standalone vaccine at birth. Vaccines were followed until 9-10 years of age in 1 study and up to 4.5 years of age in 2 studies. Anti-HBs declined after primary vaccination but were above the seroprotective level (10 mIU/mL) in 73.3%-96.1% of children at 4.5 years of age. 49.3% of children had anti-HB antibodies \geq 10 mIU/mL at 9-10 years of age (versus 42.9% of children after comparator DTPa-HBV-IPV/Hib vaccine, Infanrix® hexa); 92.8% of subjects in this group demonstrated a booster response after revaccination challenge with HB vaccine.

Good persistence of anti-HB antibodies has been demonstrated irrespective of the vaccination schedule during the first 2 years of life.

WSPID19-0278 E-Poster Viewing - 6-8 November Vaccination: Vaccine hesitancy and uptake

FACTORS ASSOCIATED WITH NON-COMPLIANCE TO THE NATIONAL IMMUNIZATION PROGRAM IN A HEALTH CENTER

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Background:

Immunization is the most effective health measure to reduce childhood morbidity and mortality. Despite the campaign of the World Health Organization for complete immunization, only 69% were fully immunized. 2017 statistics of Quezon City Health Center revealed that 30-35% of children were not fully immunized.

Aims:

To determine the risk factors associated with non-compliance to the National Immunization Program (NIP) among children less than 5 years old in a Health Center.

Methods:

A Cross Sectional Analytical study was employed. The parent/caregiver of the patients age 1 to less than 5 years old, who sought consult at a Health Center was recruited as participant using Non Probability Convenience Sampling Methodology until sample size of 288 was met. Questionnaires were given after obtaining a consent. Association between variables was based on the Chi square test. P value of less than 0.05 was considered significant.

Results:

The study showed that 25% of the respondents were non-compliant. The parent/caregiver's age (p value of 0.002), civil status (p value of 0.005), occupation (p value of 0.04), education (p value of 0.017), child's birth rank (p value of 0.008) and place of delivery (p value of 0.003) were significantly associated with non-compliance to NIP. Parent/caregiver who were older, single, employed, had only primary and secondary education were more non-compliant. Those born second and beyond and delivered non institutionally were not fully immunized.

Conclusion:

Parent/caregiver factors such as age, civil status, occupation, education, child's birth rank and place of delivery were significantly associated with non-compliance to the NIP.

WSPID19-0320 E-Poster Viewing - 6-8 November Vaccination: Vaccine hesitancy and uptake

FACTORS AFFECTING THE ACCEPTANCE OF SCHOOL BASED DENGUE VACCINATION PROGRAM

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Background:

A school based Dengue Vaccination Program was implemented in Payatas B Annex Elementary School. However, only 6.9% of students were vaccinated because not all parents/legal guardians agreed to sign the consent for vaccination. High acceptance of the school based dengue vaccination program is required because acceptance of the program is a critical factor for it to be successfully implemented.

Aims:

To determine the association of the following factors with acceptance of school-based dengue vaccination program at Payatas B Elementary School: a) demographic data such as age, sex, educational attainment, type of occupation, b) knowledge, attitude, practice toward dengue fever, c) dengue fever experience, d) perceived benefits of dengue vaccine, and d) perceived adverse effects of dengue vaccine.

Methods:

A community-based cross sectional survey using pilot-tested, self-administered questionnaires.

Results:

The study found 51.3 %of the participants were likely to accept the school based dengue vaccination program. Univariate analysis showed several factors were significantly associated with acceptance of the school based dengue vaccination program. These were occupation, good preventive practice, with dengue experience, perceived benefits of dengue vaccine and perceived adverse effects of dengue vaccine. The multiple logistic regression analysis revealed that having dengue experience and perceived benefits of dengue vaccine were independently and significantly associated with acceptance of the school based dengue vaccination program.

Conclusion:

Acceptance rate of the school based dengue vaccination program at Payatas B Annex Elementary school was (51.3%). Dengue experience and perceived benefit effects of dengue

vaccine were independent and significant predictors of acceptance of the school based dengue vaccination program.

WSPID19-0195 E-Poster Viewing - 6-8 November Viral Infections: Arbovirus infections including Chikungunya, Dengue virus, yellow fever, Zika virus

HEALTH OUTCOMES IN POST-NATALLY ACQUIRED PEDIATRIC ZIKA VIRUS INFECTION: A SYSTEMATIC REVIEW

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Background:

Post-natally acquired Zika virus (ZIKV) infection in children has generally been described as asymptomatic or a self-limited febrile illness. However, it is critical to document the spectrum of clinical manifestations and potential complications to facilitate diagnosis and prognosis. Moreover, animal studies suggest that ZIKV acquired in infancy may have neurodevelopmental sequelae.

Aims:

To summarize the literature on health outcomes in post-natally acquired pediatric ZIKV infection.

Methods:

Systematic review following PRISMA guidelines and Cochrane methodology. MEDLINE, Embase, PubMed, CINAHL, LILACS, and WHO's ICTRP clinical trials registries database were searched up to January 2019 using the terms "Zika virus" and "Zika infection." Editorials, letters, news articles, case series N<10, and animal studies were excluded. Two independent reviewers conducted screening, data extraction and quality appraisal. Conflicts were resolved by consensus or a third reviewer.

Results:

9380 references were recovered. 10 case series met inclusion criteria and present data from Brazil (N=1), Caribbean (N=1), Colombia (N=1), Dominica (N=1), Puerto Rico (N=2), Singapore (N=1), and United States (N=3). N ranged from 11-18,576, and age from 0-18 years. There was incomplete reporting of clinical symptoms and inconsistent laboratory confirmation of ZIKV

infection. The most common symptoms were fever (71-99%) and rash (80-100%), reflective of case definitions. Severe complications were rare (Guillain-Barre Syndrome 0-0.2%; meningitis/encephalitis 0-0.09%; mortality 0-0.05%). No neurodevelopmental outcomes were reported. Study quality was moderate-to-high.

Conclusion:

Limited case series data indicate that post-natally acquired pediatric ZIKV infection is generally mild, with very rare severe sequelae. Further research is required to characterize neurodevelopmental outcomes.

WSPID19-0294 E-Poster Viewing - 6-8 November Viral Infections: Arbovirus infections including Chikungunya, Dengue virus, yellow fever, Zika virus

PREDICTORS OF SEVERE DENGUE IN PEDIATRIC PATIENTS

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Background:

Dengue is the most common arthropod-borne viral illness in humans. Identification of signs or symptoms that facilitate early prediction of progression into Severe Dengue (SD) may decrease disease burden and mortality.

Aims:

To determine factors associated with SD among pediatric patients at FEU-NRMF from January 2014 to December 2016.

Methods:

Patients below 19 years old with and without SD admitted at FEU-NRMF Medical Center from January 2014 to December 2016were included. Simple random sampling was done to obtain a sample size of 359. The following data were extracted: age, sex, nutritional status, presence of clinical factors (abdominal tenderness, hepatomegaly, cold extremities), history of previous dengue infection, hematologic factors (significant hemo-concentration defined as hematocrit of 50% or a rise of more than 22% from baseline, and significant thrombocytopenia defined as a platelet count of less than 75,000/mm3).

Results:

Out of 359 dengue patients, 330 (91.9%) were classified under without SD, while 29 (8.1%) had SD. Majority of the dengue patients were in the 2-10 years old age category for both severe (72.4%) and without severe (51.5%) dengue. Male:female ratio was 1.2: 1 for both categories. The age, sex and nutritional status between with and without SD groups were not statistically different. Multiple logistic regression showed hemoconcentration (odds ratio [OR] 7.267, 95% CI 2.13-24.7), thrombocytopenia (OR 6.683, 95% CI 1.3-32.6) and presence of cold extremities (OR 590.438, 95% CI 46.1-7553.5) to be significant risk factors for SD.

The presence of hemoconcentration, thrombocytopenia and cold extremities were significant risk factors of severe dengue in pediatric patients.

WSPID19-0339 E-Poster Viewing - 6-8 November Viral Infections: Arbovirus infections including Chikungunya, Dengue virus, yellow fever, Zika virus

COMPARISON OF CHARACTERISTICS OF DENGUE HEMORRHAGIC FEVER IN CHILDREN DURING 2011 AND 2013 OUTBREAKS

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Background:

Dengue Fever is a recent phenomenon in Pakistan. Dengue Hemorrhagic Fever (DHF) remains lethal if not identified and managed promptly

Aims:

To compare features of DHF in children presenting during dengue outbreak of 2011 with those presenting in 2013.

Methods:

Retrospective analysis of the patients' records admitted with DHF at the Children's Hospital Lahore was done.

Results:

Of 125 cases of DHF treated in 2011 records of 60 children were available, 49 cases of DHF were admitted in 2013. Compared to 2011, fewer (17% vs 27%) were younger than 5 years. Vomiting, abdominal pain and loss of appetite had similar frequency in both years. Bleeding manifestations were less seen (13 % vs 27%) in year 2013. 15% patients had platelet count below 20 x109/L during both years. At least 30% patients had TLC count more than 5 x 109/L. For platelet count, TLC count and hematocrit the 50th centile was recorded at 38 x109/L, 4.25 x109/L and 43% respectively. Whereas 90th centile for all three were at 67 x109/L, 8.2 x109/L and 52.3% respectively. Dengue serology (Ig M) was positive in 33.80% and 23.19% cases in 2011 and 2013 respectively. In 2013, DEN-3 virus was isolated from few patients. Co-infection with enteric fever was seen in 6% and 4%; and with malaria in 3 % and 1.7% respectively in 2011 and 2013.

Conclusion:

DHF in children may have protean manifestations as regards their relative frequency. Hematological parameters though can guide but may vary in certain subset of pediatric patients.

WSPID19-0075 E-Poster Viewing - 6-8 November Viral Infections: Encephalitis

HHV-6 ENCEPHALITIS WITH FULMINANT BRAIN EDEMA IN A PREVIOUSLY HEALTHY CHILD

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Background:

Human Herpes Virus 6 (HHV-6) is common cause of febrile seizures in children. However, it is also a rare cause of encephalitis, most common in immunosuppressed child and usually with a good outcome. We describe a case of HHV-6 encephalitis with fulminant brain edema in a previously healthy child.

Aims:

To describe the second reported case in literature of lethal brain edema due to HHV-6 in a previously-healthy child.

Methods:

9-month-old girl, with unremarkable clinical history, presented to our emergency room with a history of three days of fever and diarrhea. Three hours prior to admission patient had status epilepticus. Patient then developed hypovolemic shock, mydriatic pupils, no spontaneous movements, and absence of brainstem reflexes.

Results:

Laboratory findings showed metabolic acidosis, pancytopenia (Hb: 10,8; Leucocytes: 2320, S: 33%; Bands: 16%; L: 46% and Platelets: 122 x103), negative CRP, normal renal function and electrolytes, elevated hepatic transaminases and coagulopathy. Central nervous system tomography revealed severe diffuse brain edema, collapsed lateral ventricles, thigh basal cisterns and no clear differentiation between gray and white matter. Cefotaxime and Acyclovir were started. Cerebral spinal fluid (CSF) revealed HHV-6. Neurologic death occurred five hours later. CSF and bloodstream cultures were negative. Autopsy revealed herniation of cerebellar tonsils, massive cerebral edema and meningoencephalitis due to human herpes virus 6 by polymerase chain reaction.

Although, HHV-6 is a rare cause of encephalitis in children, when it occurs with brain edema course can be fatal, even in immunocompetent child. Outcome depends on aggressive treatment to brain edema.

WSPID19-0080 E-Poster Viewing - 6-8 November Viral Infections: Gastrointestinal tract infection

CLINICAL FEATURES OF VIRAL DIARRHEA IN THE CHILDREN OF HIV

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Background:

Viral diarrhea is the leading cause of uncertain etiology of acute intestinal infections. According to international statistics, 50-80% of diarrhea is viral diarrhea.

Aims:

To study was to investigate the clinical features of viral diarrhea in children with HIV

Methods:

The study involved 30 children aged between 1 and 18 years who were treated at the Republican AIDS Center. Clinical, virological, bacteriological, serologic (PCR) methods were used.

Results:

The study showed that viral diarrhea is more prevalent in children under the age of 3 years with HIV. 21 (70%) of the 30 children with diarrhea have been diagnosed with viral etiology. Viral diarrhea was caused in 16 children (76.2%) by rotavirus while normal diarrhea with normal Herpes type 2 (9.5%) and adenovirus diarrhea 1 (4.76%), 2 (9.5%) patients had mixed etiologic viral diarrhea. The most severe diarrhea was rotavirus diarrhea, with strong symptoms of intoxication and symptoms of multiple vomiting in children. Catarrhal signs in the rotavirus diarrhea were more susceptible to adenovirus diarrhea. The body temperature rose slowly and reached 39.1 ° C until 4-5 days before the onset of the disease. In the diarrhea clinic with a normal herpes virus, multiple seizures (more than 10 times) occurred suddenly on the background of sub-febrile body temperature. The return was 5.2 ± 1.8 days, the fecal matter was fluid and was observed 1-2 times a day

Conclusion:

Thus, according to the results of the study, ethylogically rotavirus was the leading cause of viral diarrhea in HIV-infected children. Diarrhea syndrome prevailed over vigor and vomiting

WSPID19-0299 E-Poster Viewing - 6-8 November Viral Infections: Gastrointestinal tract infection

VIRAL GASTROINTESTINAL INFECTIONS ASSOCIATED WITH INTUSSUSCEPTION S. Shin¹

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Background:

: Intussusception is the invagination of an intestine segment within a more distal one and it is the most common cause of bowel obstruction in children. Association with viral gastrointestinal infection is discussed in many years, but it is different from studies. In this study, we conducted multiplex PCR from stool specimens in patients with intussusception.

Aims:

To evaluate the relationship intussusception with viral gastrointestinal infection, we conducted viral testing on stool samples from patients with intussusception.

Methods:

Stool samples were collected 1-2 days after air reduction in patients with intussusception from January 2013 to December 2018. Samples were tested for enteric adenovirus, norovirus GI, norovirus GII, rotavirus, astrovirus, sapovirus by multiplex polymerase chain reaction.

Results:

215 patients with intussusception were got air reduction. 166(77.2%) stool samples were tested multiplex PCR. 45 samples of 166 (27.1%) were positive results. Enteric adenovirus was detected in 15(9.0%) cases, norovirus GII in 9 (5.4%), norovirus GI in 6 (3.6%), astrovirus in 3 (1.8%), rotavirus in 3 (1.8%) cases. Coinfection of enteric adenovirus and norovirus GII in 3 cases was detected.

Conclusion:

Our results show that intussusception is associated with enteric adenovirus infections, and norovirus GII infections. We can not find the association of intussusception with rotavirus infection. We suggest that after vaccine era, rotavirus is no more origin of intussusception.

WSPID19-0024 E-Poster Viewing - 6-8 November Viral Infections: HIV infection

THE KNOWLEDGE, ATTITUDE AND PRACTICES OF MEDICAL STUDENTS ABOUT HIV

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Background:

It was seen that there is lack of basic knowledge about HIV in medical students.

Aims:

To evaluate the knowledge of medical students regarding HIV in pre-clinical and clinical years of medical college in Pakistan.

Methods:

A cross sectional study including 300 students of clinical and pre-clinical years was done by convenience sampling. They filled a well-developed, pretested questionnaire and the results were analyzed by the Google forms itself.

Results:

Almost 100% had heard about HIV& knew what it stands for. The source of information for majority (92%) was books while teachers, media/internet, friends/relatives also contributed to 38.5%, 37% & 14%, respectively. They mentioned sexual contact (98.9%), blood transfusion (95%), infected needles (99.4%), sharing meal (76%), touching the infected blood (53.6%) or handshake (4%) as transmission mode. The 54.7% knew that needles should be cut before discarding. An HIV infected person can have weak immune system (97%), give healthy looks (83%), lose weight (91%), have fever (85%), fatigued (82%), swollen lymph nodes (81%), oral infections (60%) and diarrhea (45%). Mostly (93%) knew that firstly, CD-4 cells are affected by HIV. Majority (78%) thought there isn't any vaccine for HIV while 22% thought there is. They disliked to be taught by a teacher (88%) or buy from a shopkeeper (27%) who is HIV positive, 16% had no concern for the HIV status of a friend while 83% felt pity for him.

Conclusion:

The majority of the students have a proper basic knowledge regarding HIV. Some students lack the basic knowledge in the pre-clinical years.

WSPID19-0078 E-Poster Viewing - 6-8 November Viral Infections: HIV infection

EVALUATION OF PLATELET CHANGES IN HIV INFECTED CHILDREN DURING THE TREATMENT

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Background:

The urgency of the HIV problem is not voidable. Along with many opportunistic infections affecting the quality of life of people living with HIV, hematological disorders, including thrombocytopenia play the important role

Aims:

To study the effect of antiretroviral therapy schedules on platelet counts in HIV infected children

Methods:

The study involved 40 children under 18 years of age treated in 1st Republic Infectious Disease Clinic. The degree of immunodeficiency was determined by the level of CD4+ lymphocytes (according to WHO classification dated 2012), as well as the level of HIV RNA was detected. The median of age was 12.2±1,9

Results:

The study showed that before treatment, the median platelet count was $190\pm2,4x109/I$ (p<0,01). Depending on the scheme of antiretroviral therapy (ART), children were divided into 2 groups: group 1 (n=24) received nucleoside reverse transcriptase inhibitors (NRTI) plus non-nucleoside reverse-transcriptase inhibitors (NNRTI), group 2 (n=16) received treatment according to the scheme NNRTI+NRTI+PI. As a result of treatment, after 12 weeks in group 1 of patients, the median platelet count was $170\pm2,4x109/I$ (p<0,01) and in group 2 it was $185\pm2,1x109/I$ (p<0,05), after 24 weeks it was $186\pm6,4x109/I$ and $209\pm5, 1x109/I$ (p<0,05), respectively

Conclusion:

Thus, the ART schemes including the protease inhibitor were shown to have the most positive influence on the platelets count

WSPID19-0079 E-Poster Viewing - 6-8 November Viral Infections: HIV infection

PECULIARITIES OF CLINICAL MANIFESTATION OF BACTERIAL DIARRHEA IN HIV-INFECTED CHILDREN

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Background:

Diarrhea in HIV-infected children is often caused by various viruses which are caused by a weakening of the protective functions of the body.

Aims:

To study the clinical features of bacterial diarrhea in HIV-infected children

Methods:

The study included 50 HIV-infected children with the diarrhea syndrome of bacterial origin aged 1-5 years were treated at the Specialized Clinic of the Republican Center for the Fight against AIDS. The diagnosis was based on clinical, immunological, virological, serological and bacterial studies

Results:

Bacteriological examination of feces of 5 children (56%) showed Shigella flexneri, 2 children (22%) had shigella boydii, 1 and 1 patients had Shigella dysentery and Shigella zone (11%; 11%, respectively). Campylobacteriosis was accompanied in 5 HIV-infected children with children's diarrhea syndrome (83.4%) with a temperature reaction that rose to 38 °C. In 10 HIV-infected children with diarrhea syndrome, Escherichia coli was found. Half of the children (5 children) had normal body temperature, the symptoms of intoxication and dehydration, and frequent loose stools with mucus more than 3 times a day were less expressive(40%). In 4 HIV-infected children with the diagnosis of salmonellosis showed temperature above 38 °C, symptoms of intoxication and dehydration, pain in the epigastric region and around the navel, liquid fetid stool with mucus were observed in all patients (100%) while 9 HIV-infected children with staphylococcal infection showed progressive, diarrhea, dyspepsia and dehydration

Thus, in HIV-infected children with diarrhea syndrome, the frequency of occurrence of bacterial agents does not differ from healthy children. The severity of clinical symptoms is more expressive

WSPID19-0261 E-Poster Viewing - 6-8 November Viral Infections: HIV infection

RETENTION IN CARE OF HIV-INFECTED CHILDREN AT THE PAEDIATRIC HIV TREATMENT PROGRAMME, UCH IBADAN: A 7 YEAR COHORT STUDY <u>A. Adelaja</u>¹, B. Ogunbosi^{1,2}, B. Brown^{1,2}, R. Oladokun^{1,2} ¹University College Hospital, Paediatrics, Ibadan, Nigeria ²Faculty of Clinical Sciences- College of Medicine- University of Ibadan, Paediatrics, Ibadan, Nigeria

Background:

Retention in Care of HIV-infected Children at the Paediatric HIV Treatment Programme, UCH Ibadan: A 7 Year Cohort Study

Retention in care is a common challenge in paediatric HIV treatment programmes. This is often aggravated by the high orphan rate among them.

Aims:

This study describes the retention in care status in a large cohort of HIV-infected children and the effect of orphan status.

Methods:

Methods: This was a retrospective cross-sectional study of a large cohort of HIV-infected children receiving care at the Paediatric HIV programme at the University College Hospital, Ibadan. An electronic data base was interrogated to ascertain retention status of HIV-infected children enrolled at the clinic and their orphan status. Results were summarized using descriptive statistics.

Results:

A total of 892 HIV-infected children were enrolled. Most were males 476(53.3%) and the mean (SD) age of enrolled children was 90.8(58.8) months. Of the enrollees, 365(40.9%) were still in care, 356(39.9%) were on antiretroviral therapy (ART)and 9(1.0%) were yet to commence ART.71(8.0%)had died, 2(0.2%) were defaulting their due clinic appointment, 85(9.5%)had been

transferred, 43(50.6%) of these to adult ART service and 42(49.4%) to other HIV treatment programmes. 369(41.4%) were lost-to-follow-up, of these 140(37.9%) were yet to commence ART and 229(62.1%) were already on ART. Among 460 children with documented orphan status, 53(11.5%) orphans were lost-to-follow-up, compared to 46(10.0%) non-orphans.

Conclusion:

Retention in care at the paediatric HIV programme was low. A significant proportion were lost to follow-up, among those on ART and those yet to commence ART. Orphan status might be a contributing factor.

WSPID19-0323 E-Poster Viewing - 6-8 November Viral Infections: HIV infection

PREGNANCY IN HIV VERTICALLY INFECTED ADOLESCENTS: IS IT POSSIBLE PREVENT THE THIRD GENERATION OF HIV INFECTED INFANTS?

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Background:

An increasing number of vertically infected HIV (VIH) women (the second generation of HIV) are reaching adulthood and becoming pregnant. Most of them have been exposed to a high number of antiretroviral regimens during pediatric care, and when they become pregnant, they may have difficulties to achieve viral suppression.

Aims:

To describe pregnancy features among VIH adolescents regarding prenatal adherence and HIV transmission.

Methods:

Retrospective cohort study that included VIH adolescents and their newborns, held at a tertiary hospital in the extreme South of Brazil from February/2013 to December/2016.

Results:

Twenty pregnancies in VIH adolescents were registered at a mean age of 18±1,6 years old (range 14–20 yo). Pregnancy was not planned in 73.6% but all the patients have had an adequate prenatal care with a mean of 8.3±3.3 appointments, most of them in high-risk pregnancy care services. Eighteen patients (90%) received adequate antiretroviral treatment during pregnancy. The median CD4 cell count was 647 (range 103-1211) cells/ml and 45% patients had undetectable viral load near delivery. None of the newborns was HIV infected and four of them (20%) were small for gestational age.

Conclusion:

Although there were high rates of unplanned pregnancies in vertically infected HIV adolescents, an excellent adhesion to prenatal care and an adequate antiretroviral therapy may have contributed to preventing the third generation of HIV infected children.

WSPID19-0369 E-Poster Viewing - 6-8 November Viral Infections: HIV infection

DEVELOPMENT OF ENGINEERED NANOCARRIER FOR CONTROLLED DELIVERY OF A PROTEASE INHIBITOR

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Background:

AIDS is a chronic, progressive syndrome, characterized by intense viral replication and profound immunosuppression, resulting in the development of life threatening opportunistic infections. HIV infection leads to deterioration of immune functions.

Aims:

The objective of the present study was to develop & characterize engineered nanocarriers for controlled delivery of a protease inhibitor. Lopinavir was the drug of choice as it is an effective antiretroviral drug having specific and prominent anti-HIV action. Engineered nanocarriers targeted towards the prespecified target tissues by coupling with mannose delivers the drug in a controlled manner to the site of action. Thus it results in increased bioavailability & avoids adverse effects associated with the drug.

Methods:

The uncoupled Solid Lipid Nanoparticles (SLN) were prepared by Solvent diffusion method and then coupled with mannose. Characterization studies were done by Scanning & Transmission Electron Microscopy(SEM & TEM). X-ray diffraction(XRD) & *Differential scanning calorimetry (DSC) studies were performed along with the in-vitro* studies followed by *in-vivo* studies on albino rats.

Results:

In-vitro & *in-vivo* studies results shows Mannose coated SLNs(MSLN) deliver their contents to macrophage rich organs and tissues, which are the reservoir of HIV. Low elimination and better distribution profile can be achieved by MSLNs. The dose of antiviral agent can be reduced due to site-specific delivery from this carrier.

Conclusion:

Conclusively, ligand-mediated bio-disposition and cellular interaction of MSLNs, especially at target sites, would be a focal paradigm for upcoming research in the field of anti-HIV drug

delivery. MSLNs have paved way for bio-stable, site-specific and ligand-mediated delivery systems with desired therapeutics.

WSPID19-0170 E-Poster Viewing - 6-8 November Viral Infections: Influenza infection and respiratory virus infections

FEBRILE SEIZURES IN THE CHILD SUSPECTED OF HEREDITARY FORM OF CALCINOSIS OF THE BRAIN BASAL GANGLIA (CLINICAL PRESENTATION)

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Background:

Febrile seizures (FS) are found in from 2 to 5% of children according to various authors. These attacks are age-related and have a favorable outlook in most cases.

Aims:

To describe a clinical case of FS in the child with a suspicion of hereditary form of calcinosis of the brain basal ganglia.

Methods:

MRI,EEG.

Results:

Child K., a girl, 8 years old. From the age of 4 years, on the background of febrile temperature have epileptic seizures with generalized tonic-clonic duration up to 10 minutes. Since the age of 6 years, the attacks began to occur at presence of subfebrile temperature, and at 7 years was first appeared without a reason. MRI brain - without pathology. EEG- was detected polyfocal sharp wave epileptiformal activity. Child's mother had same FS in childhood on the background of infectious diseases. Mother investigation showed calcins in the basal ganglia area with a maximum defeat of the lentil body and the caudate nucleus head. In connection with this finding was repeated MRI of the brain in the child with different types of calcium-sensitivity SWI. A slightly elevated sedimentation of calcium in the basal nuclei of the child has been detected and at this moment with tendency to the increasing. Laboratory abnormalities regarding the exchange of calcium were not detected. This finding potentially will influence on the further course of the disease in the child.

Conclusion:

Febrile seizures often occur in children at high temperatures. But their atypical course requires a detailed study of possible other etiological causes of attacks
WSPID19-0357 E-Poster Viewing - 6-8 November Viral Infections: Influenza infection and respiratory virus infections

INFLUENZA-ASSOCIATED HOSPITALIZATION IN CHILDREN IN A REFERENCE CENTER IN MÉXICO CITY, 2013- 2018.

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Background:

Respiratory infections in developing countries are important causes of death in children. Every year influenza infections affect 5% of adult population and 20% of children.

Aims:

The aim of this work was to analyze the burden of influenza and determine risk factors for mechanical ventilatory support (MVS), admission to intensive care unit (ICU) and death.

Methods:

File based retrospective cohort, was performed over five influenza seasons (2013-2018) in a pediatric tertiary referral hospital in Mexico City. Patients' demographics, and medical history were recorded. Nasopharyngeal samples were tested by Multiplex PCR with microarray reading (CLART® PneumoVir, Genomica, Spain) for influenza identification.

Results:

Among 5,000 hospitalized patients with acute respiratory illness, 410 (8.2%) had positive test for influenza. 356 had complete data (252 severe acute respiratory infection [SARI] and 104 nosocomial influenza). Children distribution: 12% younger than 1 year, 36% 1 – 4 yo, 28% 5 – 9 yo and 24% older than 10 years. Mortality rate: 2.73% SARI and 15.38% nosocomial influenza. Only 5.9% subjects didn't have comorbidities, most frequent were cancer, neuromuscular and congenital heart diseases. Viral coinfection was present in 97 (37.9%) subjects and most frequent coinfection was RSV. There was lack of concordance with CDC definition of influenza like illness (ILI) in SARI (22%) and nosocomial influenza (46%). Risk factors for MVS were respiratory distress, cyanosis, hypotension and coinfection and for death: leucopenia, cyanosis, hypotension and Influenza A H1N1 infection.

Conclusion:

Updated epidemiological information of severe influenza and death is important to guide effective control programs and define priority groups for vaccination.

WSPID19-0402 E-Poster Viewing - 6-8 November Viral Infections: Influenza infection and respiratory virus infections

INFLUENZA A (H1N1) INFECTION ASSOCIATED SEVERE RHABDOMYOLYSIS

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Background:

Rhabdomyolysis is characterized by breakdown of muscle causing release of protein damage; creatine phosphokinase (CPK). Common causes of rhabdomyolysis are trauma, medication, metabolic myopathy, toxin and infection. The most common cause of virus-associated rhabdomyolysis is influenza infection. While myalgias are common symptoms of influenza infection, rhabdomyolysis is rather under-reported.

Aims:

To demonstrate clinical features, diagnosis, management and outcome of influenza A (H1N1) associated with severe rhabdomyolysis.

Methods:

We presented a case report of PCR-confirmed influenza A (H1N1) infection associated severe rhabdomyolysis.

Results:

A 14-year-old Thai boy presented with high fever, headache, vomit, diarrhea and severe myalgia. He had generalized muscle pain especially both calves and back tenderness. He had mild respiratory tract symptoms. His urine is dark amber color. Investigations revealed hemoglobinuria with marked elevated CPK (27,000 U/L). Intravenous fluid hydration and urine alkalinization were given. PCR for influenza A (H1N1) was positive from nasopharyngeal specimen. Oseltamivir treatment was prescribed with extended for 10-day course due to severe rhabdomyolysis. The patient recovered with normal kidney function without any renal replacement therapy.

Conclusion:

Influenza-associated rhabdomyolysis is not uncommon. The presentation can be with mild respiratory symptoms. Physician should consider checking CPK level in patients with severe myalgia. Oseltamivir treatment and proper fluid management play the role in prevent acute renal

failure from severe rhabdomyolysis. Influenza vaccination is the mainstay for prevent the burden of infection.

WSPID19-0143 E-Poster Viewing - 6-8 November Viral Infections: Other virus infections

CLINICAL CHARACTERISTICS OF HUMAN PARVOVIRUS B19 INFECTION IN CHILDREN

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Background:

Human parvovirus B19 infection is widespread and associated with a heterogeneous clinical spectrum, ranging from asymptomatic to potentially life-threatening events, such as aplastic crisis in chronic hemolytic anemia, hydrops fetalis, neurologic diseases and arthropathy.

Aims:

During a outbreak of our community human parvovirus B19 infection, we investigated the various clinical features of parvovirus B19 infection.

Methods:

We conducted a retrospective chart review in children (0 to 18 years) with detected parvovirus B19 Immunoglobulin M (IgM) and DNA by polymerase chain reaction (PCR) and presenting with fever, rash, pale or abnormal laboratory findings at the Pusan National University Children's Hospital between December 2017 and April 2019.

Results:

There are 67 patients that were checked parvovirus IgM and parvovirus PCR during December 2017 and April 2019. Parvovirus was detected in 24 (35.8%) of 67 patients. Mean age of 24 patients was 7.3 years (range 3-15). 12 (50%) of 24 patients had lace form rash and 4 (16.7%) of 24 patients had petechial rash in arms, legs, neck and trunk. 6 (25%) of 24 patients were diagnosed aplastic crisis. 3 (50%) of 6 patients with aplastic crisis were diagnosed acute lymphocytic leukemia.

Conclusion:

In addition to erythema infectiosum, acute infection with parvovirus B19 can be associated with generalized purpuric or petechial rashes. During a community outbreak of human parvovirus B 19 infection has been commonly seen in children with not only hereditary spherocytosis but also acute lymphocytic leukemia.

WSPID19-0171 E-Poster Viewing - 6-8 November Viral Infections: Other virus infections

ENTERAL SYNDROM IN THE CHILDREN WITH MEASLES

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Background:

The Measles Morbidity have as international and domestic medical and social problem

Aims:

Investigation of the pathological influence of the Measles virus damage on digestive tract

Methods:

The study contingent consisted of 70 children aged 12 to 48 months with Measles diagnosis. Clinical laboratory and bacteriological research was conducted.

Results:

Symptoms of the gastrointestinal tract disorders were observed in children: abdominal pain $(23.91 \pm 6.36\%)$, diarrhea $(60.87 \pm 7.28\%)$, which was implicated in the enteral syndrome $(60.87 \pm 7.28\%)$. The intestinal syndrome was characterized by the presence of a creatorrhea - the presence of modified muscle fibers (+) in the 48 children $(85.71 \pm 6.73\%)$ and (++) - in 8 (14.29 $\pm 6.73\%)$. In 7 childs there were unchanged muscle fibers $(10.71 \pm 5.95\%)$. Amylorrhea (presence of extracellular starch) was presented in 32 childs (57.14 $\pm 9.52\%$). The syndrome of pancreatic insufficiency was presented by steatorrhea in 7 childs (10.71 $\pm 5.95\%$), and extracellular starch was seen in 32 childs (57.14 $\pm 9.52\%$). Biliary disorders - characterized by presence of fatty acids (steatorrhea) in 8 childs (14,29 $\pm 6,73\%$,), soap in 7 childs (10,71 $\pm 5.95\%$,). According to investigation, the negative results of the microbiological study of feces of concomitant pathogenic flora in childs were prevalent. Staphylococcus aureus (1.3%), Klebsiella (0.7\%), Proteus mirabilis (0.5\%) were in mimum values.

Conclusion:

Thus, the enteral syndrome was detected in the vast majority of children ($60.87 \pm 7.28\%$). Characteristic predominance of digestive disturbances were in form of creatorrhea, amylorrhea and steatorrhea, which were pathogenetically caused digestive disorders.

WSPID19-0202 E-Poster Viewing - 6-8 November Viral Infections: Other virus infections

PARECHOVIRUS INFECTION: A CASE REPORT

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Background:

Human parechovirus (HpeV) causes prolonged high fever, characteristic exanthem limited to hands and feet in infants under three months old.

Aims:

A thirty-day-old patient who has been followed by fever of unknown origin and was diagnosed with parechovirus infection by multiplex PCR in nasopharyngeal swab sample and with clinical characteristics, was presented in this article.

Methods:





Thirty-day-old patient

admitted to hospital with complaints of fever that lasted for 3 days. Physical examination revealed fever, the patient was sleepy and systemic examination revealed no focus of fever. Blood, CSF and urine tests were performed. White blood cell was detected as 7210/mm3, procalcitonin: 0.916 ng/ml, CSF glucose and protein was normal. CSF Gram and Wright staining did not show leukocytes and bacteria. Ampicillin and cefotaxime treatment was started in the patient who had high fever at clinical follow-up. On the 4th day of hospitalization, there was limited erythema, edema and temperature increase in the hands and feet (Figure 1 and 2).

Results:

The redness of the hands and feet regressed and parechovirus was found as positive in the respiratory viral panel which resulted in the 7th day of the clinical follow-up; there was no growth in blood, CSF and urine culture. Clinical findings were improved and the patient was discharged with outpatient follow-up.

Conclusion:

HpeV infection should be considered in infants with sepsis-like symptoms. Although there is usually not a specific treatment of HpeV infection available, early diagnosis prevents long-term empirical antibiotic therapy, reduces the risk of antibiotic resistance and shortens the length of hospitalization.

WSPID19-0257 E-Poster Viewing - 6-8 November Viral Infections: Other virus infections

TRANSIENT HYPOPROTHROMBINAIMIA ASSOCIATED WITH ACUTE CYTOMEGALOVIRUS INFECTION IN A 4-YEAR-OLD BOY

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Background:

Newly appearing prolonged Prothrombin Time(PT) and activated Partial Thromboplastin Time(aPTT) in a previously healthy child, during or after an infection, is usually due to Lupus Anticoagulant (LA) presence. These transient antiphospholipid antibodies are generally presented during viral infections includind Adenovirus, Parvo B19, Epstein-Barr, Cytomegalovirus and Varicella. It reflects low disease activity or represents postinfectious antibodies. It is generally benign and rarely leads to clinical complications. It resolves spontaneously within 4-12weeks.

Aims:

We report a case of a previously healthy 4-year-old boy,who was admitted to our department because of fever up to 39,5oC,vomitting and dehydration.Symptoms developed 24hours prior his admission.

Methods:

His laboratory exams revealed prolonged PT and aPTT. The variance of the values is shown in the table below.

| Day | 1(admission) | 2 | 3 | 4(release) | 11 | 29 | 72 |
|-----------|--------------|------|------|------------|-------|------|------|
| PT(sec) | 21,9 | 19,7 | 17,2 | 15,3 | 15,8 | 13,0 | 13,0 |
| aPTT(sec) | 96,1 | 84,0 | 50,3 | 103,7 | 140,0 | 43,0 | 38,4 |

No bacterial agent was found in blood, urine, stool, pharyngeal swab cultures and chest radiography was also normal. Influenza test was negative. Lupus Anticoagulant(LA) was found possitive. IgM antibodies against Cytomegalovirus(CMV) were doubtful (0,98 with possitive>1,10 and negative<0,80) while all other viral IgM antibodies were negative. **Results:**

The child was treated as bacteremia with intravenous Ceftriaxone and Amikacin and iv fluids.Fresh frozen plasma was not needed, as no hemorrhagic symptoms developed.The child was released after 4 days, afebrile and free of symptoms.PT started to decrease on the 4th day of hospitalization, while aPTT kept increasing for two weeks and return to normal after 10weeks.

Conclusion:

The prevalence of coagulation abnormalities associated with viral infections in children must be much higher than expected. However, it usually transient and resolves spontaneously without causing serious complications.

WSPID19-0485 E-Poster Viewing - 6-8 November Viral Infections: Perinatal and congenital infections

A CASE OF CONGENITAL MEASLES CAUSED BY TRANSPLACENTAL INFECTION

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Background:

Congenital measles is an infection acquired in utero, and defined as an illness meeting the WHO measles case definition in an infant less than 10 days of age(Ogbuanu, Ikechukwu U, 2010). It is a rare disease and most reported cases occurred 40–50 years ago (Marquez et al., 2012). There are still not enough data be it locally or internationally, regarding incidence of measles among neonates nor measles occurring within few days of life, hence still connotes rarity of the disease. The presentation differs from that of the typical measles since it has a shorter incubation period due to direct transplacental transmission in utero bypassing the respiratory and replication phase.

Aims:

We herein present a case of a 14 day-old boy who was exposed to measles through his mother in utero. Initial presentation was rash on the 6thday of life, apart from the typical measles which presents with cough, coryza, conjunctivitis and fever. IgM measles assay was done which revealed positive, hence confirming the diagnosis. He was given intravenous immunoglobulin and Vit A and was discharged improved.

Methods:

Diagnosing congenital measles is based on clinical signs and symptoms, confirmatory tests such as measles assay or PCR can be used since the presentation of the disease varies from that of the typical measles.

Results:

Congenital measles may cause poor clinical outcomes, including fetal loss, low birth weight and preterm delivery or may present with mild clinical manifestations to fatal forms.

Conclusion:

Prevention include vaccination of women of childbearing ageand early vaccination of infants.