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**Background and Aims** Aboriginal infants are at substantially higher risk for respiratory illness (RI) and respiratory syncytial virus (RSV) infection and hospitalization compared to non-Aboriginal infants. The purpose of the present study is to compare the hospitalization rates for RI events and RSV infection in Aboriginal infants versus non-Aboriginal infants in the CARESS database.

**Methods** A prospective, observational registry of infants from 30 Canadian sites who received  $\geq 1$  dose of palivizumab during the 2005–2011 RSV seasons. Utilization and hospitalization outcomes were collected monthly throughout respective RSV seasons.

**Results** 10,452 infants were recruited (318 Aboriginal; 10,134 non-Aboriginal). A greater proportion of Aboriginal infants had factors that increased their risk of RSV infection ( $p < 0.05$ ): having siblings, being a multiple birth, exposure to smoking, and  $> 5$  individuals in the household. Aboriginal infants were less compliant with treatment ( $p < 0.05$ ) whether calculated by injection intervals or by expected number of injections during the season. Aboriginal infants had a significantly higher RI hospitalization rate (13.2% versus 6.2%,  $p < 0.005$ ), but only a trend towards a higher RSV-positive hospitalization rate (2.64% versus 1.57%,  $p = 0.059$ ). A Cox proportional hazards analysis restricted to Aboriginal infants found the risk of RSV-positive hospitalization was higher among non-compliant than compliant infants (hazard ratio = 9.2, 95% CI 1.1–76.7,  $p = 0.04$ ).

**Conclusions** This study confirms that several demographic and environmental factors that are prominent in enhancing the risk of both RSV infection and overall RI hospitalizations are at play in Aboriginal infants. Ensuring compliance with prophylaxis will likely reduce RSV hospitalization rates in this vulnerable population.

### 863 IS CEREBRAL MALARIA OVER DIAGNOSED IN CHILDREN IN SUDAN?

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**Background** WHO defined cerebral malaria (CM) in 1990 as a clinical syndrome of Plasmodium falciparum infection with unrousable coma not attributable to another cause. This has been broadened by adding altered consciousness, severe anemia, and respiratory distress without laboratory confirmation in order to curtail mortality in children. This has resulted in overdiagnosis and overlooking other serious alternatives plus overburdening the scarce resources.

**Aims** To analyze the situation in Sudan by studying children admitted with clinical CM and do all the possible diagnostic work up in order to reach definitive diagnosis.

**Patients and methods** Patients belonged to the main hospitals in the capital Khartoum admitting to well organized emergency departments. Clinical and laboratory data were collected from children over 1 month of age admitted with clinical CM between April and November 2011. Patients were investigated for CM, acute bacterial meningitis (ABM) and Herpes encephalitis (HE).

**Results** One hundred and four children fulfilled the study criteria. CM was clinically diagnosed in 38 patients but only 5 were pure CM. Sixty three were suspected for ABM but 15 were confirmed cases. HE was definitively diagnosed in only one case. There were 5 cases of mixed infection and the rest were unknown and presumed encephalitis due to viruses other than Herpes simplex.

**Conclusion** CM was clinically over-diagnosed in our study. It is advisable to do all the necessary investigations, particularly a thorough blood film examination, before diagnosing CM. It is recommended to study cases that resemble CM for more detailed viruses disease.

### 864 ASSOCIATION OF FUNGAL INFECTION AND INCREASED MORTALITY IN CHILDREN WITH CHRONIC GRANULOMATOUS DISEASE

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**Background** The aim of this study was to determine the incidence of fungal infections, identify the most common fungal pathogens, and determine the risk factors associated with fungal infections and mortality in children with chronic granulomatous disease (CGD).

**Material and Methods** All of the patients were suspected to fungal infections. The data was gathered from the medical records of all children as having CGD. The diagnosis of fungal infections were confirmed by histopathology and direct preparation, culture techniques, histopathology of surgical biopsies, and radiological examination of the affected site.

**Results** We evaluated twelve cases of chronic granulomatosis. Patients that they are susceptible to recurrent, severe infections. Children consisted of 7 males and 5 females. The median age of patients at the time of the study was 11.66 years (3 to 18). Neutrophil oxidative burst were absent (NBT=0) in all patients. Fungal infections were confirmed in five patients (41/7%) by histology and mycological methods. The most common isolated fungi in this study were *Aspergillus* sp. Out of 5 cases of fungal infections identified, three were *Aspergillus species*, and two *Fusarium* species. The most common manifestations of CGD due to fungal infections were osteomyelitis (42.8%), pulmonary infections (28.6%), lymphadenopathy (14.3%) and skin involvement (14.3%) during their illness.

**Conclusion** Invasive fungal infections are a frequent and life-threatening complication in CGD patients. The lungs and skeletal, were the most commonly affected organ; however, lymphatic, and skin involvement have also been described. Our present study showed that fusariosis also is a threat to CGD patients.

### 865 INTRANASAL MIDAZOLAM AND KETAMINE FOR GASTRIC ASPIRATES IN CHILDREN EVALUATED FOR SUSPECTED TUBERCULOSIS

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**Background and Aims** To confirm the diagnosis of pulmonary tuberculosis in children sequential gastric lavages are recommended. Limitations of gastric lavage include the need for an overnight fast, repeated specimens, and low sensitivity. Moreover, the procedure is very unpleasant for children, parents, and health workers; so sedation may be recommended. We evaluate the safety and efficacy of intranasal administration of midazolam and ketamine in uncooperative children undergoing gastric aspirates to diagnose pulmonary tuberculosis.

**Methods** We studied 11 children with suspected tuberculosis. Gastric lavages were done on three consecutive days after intranasal administration of midazolam (0.5 mg/kg) and ketamine (2 mg/kg) by a mucosal atomizer device. Pain score was assessed by the MOPS score, ranging from 0 to 10 (the higher the score the greater the pain experienced for the child). Gastric specimens underwent polymerase

chain reaction for *Mycobacterium tuberculosis* and were stained for acid-fast bacilli.

**Results** We performed 33 procedures. Median age of children was 56.4 months (13–360). 10 children were diagnosed with pulmonary tuberculosis and another 1 with latent tuberculosis. Mean MOPS score was 4 (range 2–8). The degree of sedation achieved enabled all procedures to be completed without requiring additional drugs. The only side effect registered was transitory euphoria in 6 cases (18%). Sedation was always well accepted by both parents and health workers.

**Conclusions** This study has shown that the combined use of intranasal Midazolam and Ketamine appears to be a safe and effective method to achieve children's short-term sedation and to facilitate the gastric lavage procedures.

### 866 PAEDIATRIC STOOL TESTING PRACTICES IN IRELAND AND POTENTIAL INFLUENCE ON EPIDEMIOLOGY OF ROTAVIRUS GASTROENTERITIS (RVGE) AND ROTAVIRUS IMMUNISATION

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**Background and Aims** Rotavirus vaccination has not been taken up in Ireland. We aimed to conduct a regional audit of gastroenteritis and paediatric stool testing patterns to generate better epidemiological data to support a rotavirus vaccination programme in Ireland.

**Methods** A retrospective audit of infants and children < 5yrs with Hospital Inpatient Enquiry (HIPE) coded gastroenteritis admitted between 2005 and 2010. Stool testing patterns from the community and hospitals, from the Mid-West Ireland was analysed. Trends of Rotavirus, Adenovirus, Bacterial, Stool test Negative gastroenteritis was tabulated. Audit was approved by hospital audit committee.

**Results** The incidence of rotavirus in the tested paediatric population is 26% and that of adenovirus is 5%. Rotavirus peaked in 2006 with 30% testing positive, compared with 22% in 2008 and 25% in 2010. The positive pick up rate for stool culture & sensitivity (C&S) by community clinicians and Hospital respectively was 4%, 7% and 9% in 2001, 2006 and 2010. While only 1640 stool samples were tested for rotavirus over 5 years, 7534 samples were tested for C&S with the vast majority not warranting any anti-microbial treatment. In a 5 yr period, GPs in community only requested rotavirus on 287 stool samples, while testing 3353 for C&S.

**Conclusion** Our rotavirus epidemiological data, based on which the decision not to incorporate an oral rotavirus vaccine to the National schedule, is possibly inaccurate reflecting our stool testing practices. Further reduction of clinical burden due to RVGE could be achieved by incorporating rotavirus immunization to the National programme.

### 867 EPIDEMIOLOGY OF BACTERIAL MENINGITIS IN TUNISIAN CHILDREN (2000–2011)

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Bacterial meningitis is associated with high mortality and neurological sequelae world wide.

We reported epidemiological characteristics of laboratory confirmed bacterial meningitis in children during 2000 to 2011 period.

We analyzed all laboratory confirmed bacterial meningitis cases. The serotypes and serogroups were determined by slide agglutination. Antibiotic susceptibility was determined by disk diffusion

method according to CA-SFM guidelines. Beta-lactamase production was analyzed using cefinase test. MIC of beta-lactams was determined by E-test method (AB BIODISK).

During the study period we have collected 486 cases of bacterial meningitis: 157 cases of *S. pneumoniae* (32.3%), 118 of *N. meningitidis* (24.3%), and 99 of *H. influenzae* (20.4%). Most cases (66.5%) occurred in children under 3 years. The most frequent serotype among *S. pneumoniae* was 14 (27.2%) followed by 23F (9%). The majority of *N meningitidis* strains belonged to serogroup B (72.9%) and 88.8% of *H. influenzae* strains to serotype b.

Before Hib conjugate vaccine introduction (2000–2002), *H. influenzae* were the first species responsible for meningitis (40%). During vaccine generalisation (2003–2005) we noted a decrease in Hib meningitis. At the beginning of 2006, Hib vaccination was stopped and we observed an increase of Hib meningitis cases. Antimicrobial susceptibility studies show that 43.6% and 60% respectively of *S. pneumoniae* and *N. meningitidis* strains had reduced susceptibility to penicillin. Among *H. influenzae* 47.3% was beta-lactamase producing.

The data presented in this study demonstrate that *S. pneumoniae* is the most frequent in bacterial meningitis in children and that beta-lactams resistance is frequent in our hospital.

### 868 THE PREVALENCE OF HBS ANTIGEN AND ANTI-HBS ANTIBODY AMONG PREGNANT WOMEN IN FARS PROVINCE, SOUTHERN OF IRAN

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**Background and Aims** Hepatitis B virus (HBV) infection is a worldwide health problem. Vertical transmission is a route of HBV infection that is regarded as a considerable factor in HBV prevention program all over the world. This study was conducted to screen the hepatitis B antigen (HBsAg) and hepatitis B surface anti body (Anti-HBs Ab) in pregnant women in Fars province southern of Iran.

**Methods** From September to October 2009, two hundred fifty pregnant women in Zeynabieh hospital of Shiraz were recruited consecutively to this study at the time of their delivery. Sera were examined for the detection of HBsAg and Anti-HBs Ab using enzyme-linked immunosorbent assay (ELISA). Different demographic data (i.e. age, nationality, vaccination and family history of HBV infection) were investigated to determine the presence or absence of HBsAg and Anti-HBs Ab.

**Results** Among 250 subjects the prevalence of HBsAg and Anti-HBs Ab were 1.2% and 50% respectively. Demographic data that showed significant association with prevalence of HBsAg were family history of HBV infection ( $X^2=7.735$ ,  $p=0.05$ ), age ( $X^2=3.762$ ,  $p=0.05$ ) and nationality ( $X^2=5.41$ ,  $p=0.02$ ).

**Conclusions** Findings of this study recommend the necessity of HBsAg screening test for pregnant women especially for those younger than 25 years and with the family history of HBV infection and also for immigrants.

### 869 CLINICAL SIMILARITIES AND DIFFERENCES OF ACUTE VIRAL INFECTIONS HEPATITIS A AND E IN CHILDREN IN MONTENEGRO

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**The Aim** To compare the clinical characteristics of hepatitis A virus (HAV) and hepatitis E virus (HEV) infections in children in Montenegro.