

received treatment with cytosine - arabinoside (ara-C) based consolidation and 26 patients received treatment with anthracycline based therapy (MACE/MIDAC). 9 patients (41%) in the araC group relapsed and 3 of these patients subsequently died. In only 1 patient this was secondary to resistant disease. Of the 9 patients who relapsed 6 had adverse cytogenetics. Within the group of patients treated with MACE/MIDAC consolidation, 14 relapsed (54%) and of these, 10 patients subsequently died. 6 of the 14 relapsed patients had adverse cytogenetic profiles. No patient within the MACE/MIDAC group had treatment changed due to cardiotoxicity. Chi-squared analysis of death rates identified a p value < 0.1, but more than 0.05.

Conclusions The outcome analysis indicates that there is no significant difference between rates of relapse or death in the 2 groups of patients.

261 TEN-YEAR FOLLOW-UP OF INFANTS WITH SYMPTOMATIC AND ASYMPTOMATIC CONGENITAL CYTOMEGALOVIRUS INFECTION

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Background and Aims Congenital Cytomegalovirus (CMV) infection can lead to neurological sequelae and sensorineural hearing loss (SNHL). To correlate clinical, auditory and neuroimaging findings in the neonatal period to long-term outcome in congenitally CMV-infected infants.

Methods Congenitally CMV-infected infants born between 2001 and 2011 were clinically evaluated and underwent cranial Ultrasound (cUS), cerebral Magnetic Resonance Imaging (cMRI), funduscopy examination and auditory brainstem response (BAER) in the neonatal period. Both symptomatic and asymptomatic infants were followed prospectively to assess physical growth, neurological, visual and audiological outcome.

Results Forty-two infants were evaluated. Six of 42 (14.2%) infants had symptoms/signs at birth: microcephaly (3), petechiae (4), thrombocytopenia (3), hepatosplenomegaly (3), jaundice (1), elevated serum transaminases (1). Two cases of chorioretinitis and 4 cases of abnormal BAER were found in the neonatal period. cUS demonstrated pathological findings in 6/42 (14.2%) infants: ventriculomegaly (4), pseudocysts (3), calcifications (3), cerebellar hypoplasia (1). cMRI showed abnormalities in 10/42 (23.8%) infants: pseudocysts (3), white-matter lesions (7), lissencephaly (1), ventriculomegaly (4), calcifications (2), cerebellar hypoplasia (2). At follow-up (mean duration 43±18 months) 8/42 (19%) infants showed SNHL and 8/42 (19%) showed impaired psychomotor development. The composite outcome (SNHL and/or neurodevelopmental sequelae) was poor in 9/42 (21.4%) infants. Neonatal findings in infants with an adverse outcome were: clinical signs (5/9), abnormal BAER (2/9), abnormal cUS (5/9), abnormal cMRI (9/9). Symptomatic infants received antiviral treatment.

Conclusions In our series 21.4% of congenital CMV infected infants had one or more sequelae at follow-up evaluations. A pathological neuroimaging at birth was the most sensitive predictor of long-term sequelae.

262 WHETHER MULTI-RESISTANT STRAINS OF NON-TYPHOID SALMONELLOSIS AFFECT CLINICAL MANIFESTATIONS AND OUTCOMES IN CHILDREN?

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Objective The aim of the study was to investigate whether multi-resistant strains of non-typhoid salmonellosis affect clinical manifestations and outcomes in children.

Methods Between 1996 and 2009, children with nontyphoid salmonellosis admitted to Kaohsiung Veterans General Hospital, Taiwan were enrolled. An organism was considered multi-resistant if resistant to ≥2 agents. Fecal excretion time was defined as the time-frame of the first positive stool culture and the first of two consecutive negative results. The demographic, laboratory data and clinical outcomes were compared between the patients infected with non-typhoid Salmonella susceptible to all antibiotics (susceptible group) and those infected with multi-resistant strains (resistant group).

Results 764 patients were enrolled; 318 were characterized as the susceptible group; 329 were the resistant group. Compared with susceptible group, the patients of resistant group were younger (32.36 vs 23.65 months of age); demonstrated significantly more bloody stool; higher white blood cells; longer total fever days and hospital stay (38.4% vs 49.2%; 9,538 vs 10,205/Cumm; 5.75 vs 6.66 days; 8.38 vs 9.49 days, respectively). However, there were no statistically significant differences in C-reactive protein (7.74 vs 7.82 mg/dl), occurrence of bacteremia (15.04% vs 14.57%), rates of antibiotics used (67.30% vs 70.21%), complications (3.77% vs 2.43%) and fecal excretion time [19.25 (N=20) vs 11.69 (N=16) days].

Conclusion The children with multi-resistant non-typhoid salmonellosis had more severe clinical manifestations and worse outcomes in terms of bloody stool, leukocytosis, fever days and hospital stay. Antibiotics use in humans and animals should be weighed against the development of resistance.

263 RSV HOSPITALIZATION IN CYSTIC FIBROSIS IN THE CANADIAN REGISTRY OF SYNAGIS® (CARESS) FOLLOWING PROPHYLAXIS (2005–2011)

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Background and Aims The Canadian Registry of Synagis® (CARESS) tracks palivizumab utilization and respiratory syncytial virus (RSV) hospitalizations in high-risk infants including 186 with cystic fibrosis (CF). This study compares respiratory illness (RI) and RSV positive hospitalization (RSVH) rates in CF infants versus:

1. those with other underlying medical disorders (MD) and
2. those who meet standard indications for RSV prophylaxis (SD).

Methods A prospective, observational registry of infants from 30 sites who received ≥1 dose of palivizumab during the 2005–2011 RSV seasons. Palivizumab utilization and RI outcomes were collected monthly over each individual season.

Results 10,452 infants were enrolled (CF: 186, 1.8%; MD: 1378, 13.2%; SD: 8888, 85.0%). There were significant differences (p<0.05) between the three groups in gestational and enrolment ages, weight at birth and at enrolment and proportions of: Caucasians, siblings, multiple births, daycare attendance, smokers in the household, >5 people in the household, immediate family history of atopy, and complexity of neonatal course. Infants with CF had a lower RI hospitalization rate than the MD (4.3% versus 11.0%, p=0.003) but not the SD group (5.8%, p=0.522). For RSVH rate, CF infants were not significantly different from the MD (0.72% versus 2.46%, p=0.227)

or SD (1.49%, $p=0.999$) groups. In the Cox proportional analysis, hazard ratios of time to first RSVH in CF were similar to MD ($p=0.272$) and SD infants ($p=0.422$).

Conclusions This is the largest report of CF infants who have received palivizumab world-wide. Despite RI rate differences, RSVH rates appear similar to those in MD and SD.

264 IMPACT ANALYSIS OF AN EVIDENCE BASED GUIDELINE ON URINARY TRACT INFECTION (UTI) IN CHILDREN: DETERMINANTS OF IMPLEMENTATION

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Background To improve reliable diagnosing UTI in young, non-toilet trained children, a diagnostic strategy of the Nice guideline was nationally introduced in the Netherlands. This study aims to determine the impact of this new diagnostic strategy in clinical practice. We evaluated determinants of successful implementation.

Methods We conducted a cross-sectional observational study, with observations before and after implementation. We prospectively collected data from healthy children aged 1 month- 2 years, presenting with fever at the emergency room at Sophia Children's Hospital in 2008 and 2010–2011. Primary outcome measure: assessment of children suspected with UTI according to the guideline and determinants of implementation. Secondary outcomes: number of contaminated cultures, hospitalisation and antibiotic treatment. Outcome measures are assessed by mean (95%CI). Differences before and after implementation were tested using Chi-squared test. Effects of determinants were evaluated using regression analysis.

Results The preintervention group consisted of 207 children (male 64.3%, median age 0.98 years (interquartile range IQR0.77), the postintervention group 194 children (male 55.2%, median age 1.06 year (IQR0.78). Correctly diagnosed UTI increased from 41 (19.8%; 95% CI:14.3–25.3) in the preintervention group to 101 (52.1%; 95%CI:45.0–59.2) in the postintervention group (p -value < 0.0001). Doctor's experience, shift or triage urgency did not influence compliance to the guideline. Secondary outcome measures did not significantly differ between the pre- and post-intervention group.

Conclusion Implementation of the guideline has led to a significant higher frequency of correct assessment of UTI in young children. We could not identify determinants at patient, process or professional level with significant influence on successful implementation.

265 DIFFERENCE BETWEEN ENTEROVIRUS AND HUMAN PARECHOVIRUS INFECTIONS IN YOUNG CHILDREN WITH SEPSIS-LIKE ILLNESS

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Introduction Enterovirus (EV) or Human Parechovirus (HPeV) infections are common causes of sepsis-like illness in young children. We investigated differences in incidence, clinical characteristics and management of EV and HPeV infections among young children with sepsis-like illness.

Methods In 2008 158 children under 36 months of age presenting with sepsis-like symptoms at the Juliana Children's Hospital in The Hague, the Netherlands, were evaluated in a prospective observational study. All received a sepsis work up including white cell

count, CRP, blood culture and urine screening. Cerebrospinal fluid (CSF) was collected on clinical indication. EV or HPeV DNA was detected by PCR in plasma and/or CSF. Urine cultures were performed when urine screening was positive. 10 children with urinary tract infection were excluded. Data of the remaining 148 children were analysed.

Results EV/HPeV PCR was performed in 122/148 children: 45 (37%) were EV positive and 22 (18%) HPeV positive. The most prominent difference between children with EV and HPeV was age. HPeV was solely diagnosed in children under 126 days of age. Clinical characteristics at presentation did not differ. Children with HPeV had lower leukocyte counts and lower CRP values. No difference in clinical management was found between EV and HPeV positive children.

Conclusion Sepsis-like illness due to EV and HPeV infection is common in young children, and appeared in 37% and 18% of cases respectively. HPeV occurs in younger children and causes less elevation of infectious parameters than EV infection. All other clinical characteristics are similar. Clinical management does not differ.

266 THE ASSOCIATION BETWEEN RESPIRATORY TRACT UREAPLASMA UREALYTICUM COLONIZATION AND SEVERE RETINOPATHY OF PREMATURITY IN PRETERM INFANTS ≤ 1250 G

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Background and Aim To evaluate the association between respiratory tract *Ureaplasma urealyticum* (*Uu*) colonization and development of retinopathy of prematurity (ROP) requiring treatment.

Methods The infants with birthweight ≤1250 g born in a third level neonatal intensive care unit between March 2009 and May 2010 were prospectively identified. Nasopharyngeal swabs for *Uu* colonization were taken in postnatal first 3 days. Culture positive patients were reevaluated on the 12th day by nasopharyngeal swabs for *Uu*. The primary outcome was to define whether there was an association between respiratory tract *Uu* colonization and severe ROP requiring treatment. Independent samples t-test or Mann whitney U test was used to compare continuous variables and Chi square test or Fisher's exact test for categorical variables. Multivariate (backward) logistic regression analysis was performed to simultaneously measure the influence of the independent variables with ROP as the dependent variable.

Results Twenty-five (12.1%) infants developed severe ROP requiring treatment among 206 infants who underwent ROP screening. Mean birthweight and gestational age of total cohort were 1013±159 g and 27.9±1.6 weeks, respectively. Multivariate analysis demonstrated that birthweight (OR: 0.64 (95% CI 0.47–0.88); $p=0.006$), duration of mechanical ventilation (OR: 1.17 (95% CI 1.06–1.28); $p=0.001$), premature rupture of membrane >18 h (OR: 3.83 (95% CI 1.2–12.2); $p=0.02$) and *Uu* positivity in both cultures (OR: 5.02 (95% CI 1.8–13.9); $p=0.002$) were independent risk factors for the development of severe ROP requiring treatment.

Conclusions Respiratory tract colonization with *Uu* was independently associated with severe ROP requiring treatment.

267 PROMOTING EARLY-LIFE IMMUNE DEVELOPMENT BY PERINATAL ADMINISTRATION OF PROBIOTICS TO PREGNANT/LACTATING MICE: OPTIMAL TIME WINDOW FOR INTERVENTION

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