Methods: A retrospective drug utilization evaluation was performed for pediatric patients who received intravenous vancomycin from 1 October 2007 to 31 March 2010. Dosing regimen was 40 mg/kg of body weight. All patients who received vancomycin for more than 72 hours had at least once trough serum concentration documented and were included in the study. Trough levels were obtained on steady state, 30 minutes before administration. Vancomycin concentrations were measured by an immunoassay procedure.

Results: A total of 138 samples were collected from 30 patients, aged 3 months to 16 years. Mean trough concentration was 12.9mcg/ml (median: 10.9, range: 0.2 - 46.7). Trough levels were below minimum suggested level of 10mcg/ml in 60 cases (43.5%) and above the upper limit of 15mcg/ml in 42 cases (30.4%). Fourteen of 42 cases (33.3%) with high vancomycin levels were patients with known renal failure and/or under renal replacement, whereas renal failure was documented only in 7 cases (11.9%) with suboptimal levels. Only 26% of serum samples (36 of 138) were in the therapeutic range.

Conclusions: Our data suggest only a fourth of the patients had serum levels in therapeutic range and almost half of this population had serum levels below the normal range. The dosing schedule of 40mg/kg/day in children is unlikely to achieve the recommended pharmacodynamic target. Alternative dosing such as 60mg/kg/day or continuous infusion should be considered in order to optimize the therapeutic effect.

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EVALUATION OF THE PREVALENCE AND RISK FACTORS FOR COLONIZATION BY VANCOMYCIN-RESISTANT ENTEROCOCCUS AMONG PEDIATRIC ICU PATIENTS ON ADMISSION

P.-E. Mantzafleri, **D. Paraschou**, M. Kazantzi, A. Galani, P. Kalabalikis, T. Hatzis

Pediatric Intensive Care Unit, Agia Sofia Children's Hospital, Athens, Greece

Background: Our institution experienced an increase in the frequency of vancomycin-resistant enterococci (VRE) clinical isolates. Surveillance cultures upon hospital admission for patients at high risk is recommended. We sought to measure the prevalence and risk factors of VRE carriage among

medical new patients in a Pediatric Intensive Care Unit in a university Children's Hospital.

Method: We recorded the positive VRE samples from new patients entering the PICU from 10/10/2008 - 15/04/2010. Cases had positive VRE clinical cultures (perianal/stool samples) within 48 hours of hospital admission.

Results: VRE carriage was 9,33% on admission (39 of 418 of new patients). 53,84% of the carriages had a recent previous hospitalization (33,33% of them being oncologic patients). 51,28 % of the cases had previous recorded antibiotic treatment. 46,16 % of the patients had no previous admission (33,33% of them being trauma patients). 3/39 patients developed sepsis with positive blood culture of *E. faecalis*(one) , *E. faecium* (two). 3/39 of the carriages had abdominal infection with positive pus cultures of *E. faecium*.

Conclusions: Our study demonstrates that recent previous hospitalization is not a significant predictor for identifying carriers on admission but previous antibiotic treatment and neoplastic disease are. The wide use of antibiotics among paediatric patients may be the answer. Early identification and isolation of VRE carriers among critically ill patients should supplement application of infectious control measures in an attempt to reduce nosocomial spread and burden.

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CLINICAL OUTCOME OF NEONATAL CONS-SEPSIS WITH A VANCOMYCIN-SPARING REGIMEN: FAVOURABLE RESULTS WITH CEFAZOLIN AS FIRST CHOICE AGENT

M. Hemels¹, A. van den Hoogen¹, M. Verboon-Macielek¹, A. Flee², T. Krediet¹

¹Neonatology, ²Eijkman-Winkler Center for Microbiology, Infectious Diseases and Inflammation, University Medical Center, Utrecht, The Netherlands

Background and aims: The typical empiric antimicrobial treatment protocol for neonatal coagulase-negative staphylococci (CONS) sepsis includes vancomycin. However, the protocol in our NICU prescribes cefazolin to cover CONS. The susceptibility of CONS blood isolates to cefazolin and clinical outcome of infants with CONS sepsis was studied during 2000-2006.

Methods: Clinical characteristics, symptoms of sepsis and antibiotic use were studied retrospectively. Susceptibility of CONS blood isolates to cefazolin was determined by E-test.

Results: 163/185 infants with proven CONS sepsis were treated with cefazolin. Median MIC value of cefazolin was 0.75-2 (range 0.01-256) µg/ml and 77-96% of all isolates was susceptible to cefazolin (MIC ≤8 µg/ml) during 2000-2006. In 121/140 (86%) infants with cefazolin-susceptible and 21/23 cases (91%) with cefazolin-resistant CONS isolate cefazolin was clinically efficacious. 12/17 second blood cultures in 19 non-responders yielded CONS with unchanged MIC. In 78% of good responders and 22% of non-responders a central venous catheter was removed at onset of sepsis. Non-responders were switched to vancomycin.

Conclusions: Majority of CONS isolates remained susceptible to cefazolin over a period of 7 years. Cefazolin is clinically efficacious in >85% of cases and can be recommended as first choice agent for therapy of CONS sepsis. Removal of a central venous catheter may be the most important therapeutic measure.

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INVASIVE FUNGAL SEPSIS BEFORE AND AFTER INSTITUTION OF ANTIFUNGAL PROPHYLAXIS IN A TERTIARY NEONATAL UNIT - 10 YEAR OBSERVATIONAL STUDY

A. Shastri, S. Samarasekara, D. Booth

Neonatology, Norfolk and Norwich University Hospital, Norwich, UK

Background and aims: Fungal sepsis (FS) is an important cause of morbidity and mortality in very low birth weight (VLBW) babies. The objective of our study was to review the cases of invasive fungal infection before and after starting antifungal prophylaxis (AFP) over a 10 year period.

Methods: Retrospective review of all cases of blood culture-positive fungal sepsis before AFP (January 1999 to December 2006) and after AFP (Jan 2007 to current)

Results: There were 12 cases of blood culture-positive fungal sepsis in the 7 year period before AFP. Age at diagnosis was < 14 days in 75% of cases. Fungi isolated were *Candida albicans* (75%), *Candida parapsilosis* (17%) and *Candida glabrata* (8%). Major risk factors for FS were

gestational age < 27 weeks, weight < 750g and preterm babies undergoing abdominal surgery for necrotising enterocolitis with the need for prolonged presence of central line.

AFP with fluconazole 3 mg/kg intravenously was commenced from Jan 2007 targeting high risk groups as above. In this period, there was expansion in cot capacity with 2614 admissions to our unit, of which 183 babies were either < 27 weeks or < 750g. Until now there have been no cases of FS in babies with strict adherence to the protocol. The only case of FS (*Candida albicans*) occurred on day 10 in a VLBW baby where fluconazole had not been administered as recommended.

Conclusion: AFP significantly reduces the incidence of invasive fungal infection in VLBW babies. We recommend their rational use targeting high risk babies as above.

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EPIDEMIOLOGY AND ANTIBIOTIC SUSCEPTIBILITY SPECTRUM IN UPEC FROM URINE IN CHILDREN SUSPECTED TO UTI IN MOFID CHILDREN HOSPITAL

A. Sanaei¹, A. Karimi¹, M. Navidinia², M. Sattari², F. Fallah¹, M.A. Malekan¹, M. Hadipour Jahromy¹, Z. GHolinezhad¹

¹*Shahid Beheshti University of Medical Sciences, Pediatric Infectious Disease Research Center,*

²*Tarbiat Modares University, Tehran, Iran*

Introduction: Urinary tract infection due to UPEC with antibiotic resistance is one of the most important problems in infants and children. Prevalence of UPEC isolated from children urine samples and their antimicrobial susceptibilities were considered in this study.

Material and Methods: Urine samples of children who referred to Mofeed hospital were studied during one year. *E.coli* strains in these urine samples were identified by conventional methods. The Uropathogenic *E.coli* strains was confirmed by the gene including by detecting *papC*, *papGII*, *papGIII*, *sfa/foc*, *hlyC*, *cnf1*, *iucC*, *fyuA*, *iron* N genes by PCR method

Results: 12572 urine samples of suspected children to have urinary infections were studied and then 378 *E.coli* strains were detected in which 150 of strains were UPEC (39.7%). All of Uropathogenic *E.coli* were resistant to penicillin, Oxacillin, Bacit