69 Monitoring of Mannan Antigenemia (Mn) and Antimannan Antibodies (anti-Mn) for Screening of Invasive Candidiasis in High Risk Hematological Patients

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Introduction and Methods: Between January 2005 and July 2007 we conducted a retrospective study to assess the diagnostic utility of regular Mn and anti-Mn monitoring in neutropenic patients with hematological malignancy at high risk for invasive fungal infection, including invasive candidiasis (IC). Blood samples were obtained twice weekly and Platelia Candida Ag and Platelia Candida Ab/Ac/Ak test were used for Mn and anti-Mn detection. Classification of IC cases was performed using EORTC/MSG criteria. All patients received antifungal prophylaxis.

Results: Ninety-one high risk patients were screened for Mn and anti-Mn during 104 treatment cycles. Detection of Mn and anti-Mn was performed in 1199 (mean 11.5/patient) blood samples. Only one patient fulfilled criteria for proven and probable IC (candidaemia caused by C. krusei) and thus incidence of IC was only 0.95% in our patient group. At least 1 sample with Mn > 0.25ng/ml (intermediate) was detected in 35 (33.7%) and > 0.5ng/ml (positive) in 6 (5.8%) treatment cycles respectively. Only in 1 patient Mn > 0.5ng/ml was detected in more than 1 sample - this was the patient with serious typhlitis on voriconazole prophylaxis where transient passage of Candida spp. or candida antigens could not be excluded. Even more, simultaneously performed 1,3-ß-D glucan was also positive. All other Mn positive or intermediate results were not associated with proven/probable IC. The only patient with proven IC was Mn negative in repeat samples. Anti-Mn was detected at least in 1 sample at intermediate range (>5 A.U./ml) in 56 (53.8%) treatment cycles and in 31 (29.8%) at positive range (>10 A.U./ml). Positive anti-Mn levels in repeat samples were found in 20 (19.2%) cycles. None of anti-Mn intermediate or positive patients were classified as having proven/probable IC. The only patient with candidaemia caused by C. krusei was anti-Mn negative. There was no correlation between Mn/anti-Mn positivity and fungal DNA by PCR method were assessed on serial magnetic resonance where considered, as well as galactomannan assessment had less usefulness.

Conclusions: Contribution of Mn and anti-Mn detection in routing screening of hematono- oncological patients in high risk of IFI is limited. Our analysis showed that only when the Mn antigen is detected (>0.5ng/ml) in repeat samples, IC should be considering. On the other hand, the positivity (>10 A.U./ml) of anti-Mn was very frequent (20-30% of treatment cycles) but never associated with IC.

70 Bacteremia in Children with Acute Lymphoblastic Leukemia: A Five-Year Experience in Pediatric Hematology- Oncology Unit in Northern Greece

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Background: Although the treatment of pediatric patients with acute lymphoblastic leukemia (ALL) has dramatically improved, infections still play a role in morbidity and mortality.

Objectives: The aim of this study is to determine the microbiological spectrum and the antibiotic susceptibility during episodes of fever-neutropenia (FEN) in children with ALL. Demographic data of 46 patients with ALL admitted to the Department of Pediatric Hematology and Oncology in AHEPA Hospital between January 2002 and December 2007 were evaluated retrospectively.

Methods: In 186 FEN episodes a total number of 42 infections were microbiologically documented. FEN episode was defined as a single temperature of the axilla above 38.3 °C or a temperature of 38.0 °C or higher measured on at least two occasions with 4-h intervals without using antipyretic drugs and when the absolute neutrophil count was lower than <500/L or less than 1000/L with a predictive decrease to <500/L. Peripheral blood smear, urine and blood cultures obtained via peripheral venous puncture or through a central venous catheter were evaluated.

Results: During the 5-year study period, a total of 186 FEN episodes occurred in children with ALL, with male/female ratio 27/19 (median age 5 years, ranging from 0.5 to 9 yrs). Of all organisms isolated 54.7% were Gram-positive and 45.2% were Gram-negative. The predominant Gram-positive microbes were coagulase negative staphylococci. Their susceptibility was found excellent to glycopeptides but moderate to clindamycin and aminoglycosides. The predominant Gram-negative bacteria were Escherichia coli 52.6%.

Conclusions: These results are comparable to the international data, suggesting the increasing risk of Gram-positive infections. On the other hand, the incidence of Gram-negative infections is increasing, as well. Isolation of multiresistant strains is a problem faced in these children. These data may help in the future to adopt a more selective management strategy for children with ALL.

71 Evaluation of Diagnostic Tools for Invasive Aspergillosis in Children with Cancer

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Introduction: Fungal infections are one of the most serious complications of anti-cancer treatment. The highest mortality rate is blamed on invasive aspergillosis (IA). Clinical symptoms of Aspergillus infection are usually unspecific and its diagnostic procedures are still considerable. The aim of the study was an analysis of the IA in terms of clinical symptoms, required diagnostic tools and the application of treatment and prognosis.

Materials: The retrospective analysis of clinical records from our Oncohaematology Unit between 2005-2007 revealed that among 28 pediatric neutropenic patients with symptoms of sepsis five children had IA. The records of these patients were analyzed to define the most useful method which gave the most reliable diagnosis of IA. Among diagnostic methods computer tomography (CTG) or magnetic resonance where considered, as well as galactomannan antigen and fungal DNA by PCR method were assessed on serial blood samples.

Results: The most common clinical form of IA was pulmonary aspergillosis (3 of 5 cases), one had CNS involvement and one liver localization. Three patients needed to be treated in ICU, and two of them died. Treatment regimen consists of 2 antifungal drugs: voriconazol with amphotericin B or voriconazol with caspofungin. Based on symptoms-to-treatment time in our cases the most reliable method was computed tomography or magnetic resonance imaging. Fungal DNA had only supportive role in diagnosis (2 of 5 were positive) and galactomannan antigen assessment had less useful test for diagnosis of IA because of many false positive results. However, serial measurement of galactomannan antigen seems to be a very good marker of the treatment efficacy.

Conclusions: The application of all diagnostic tools is needed for proper assessment of invasive aspergillosis. Some of these methods may additionally serve for evaluation of treatment strategies.