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Abstract (publication only)

The outcome of non-carbapenem-based empirical antibacterial therapy and vancomycin-resistant enterococci (VRI) colonisation in patients with haematological malignancies

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Objective: We retrospectively evaluated the febrile neutropenia (FN) episodes and their outcomes with respect to modification rates of non-carbapenem-based empirical antibacterial therapy and vancomycin-resistant enterococcus (VRE) colonisation that caused to VRE bacteremia in patients with hematological malignancies. Methods: All consecutive patients, who were older than 14 years of age and developed febrile neutropenia episodes due to hematological malignancies from September 2010 to November 2011 at the hematology department were included into the study. Results: In total, 86 consecutive neutropenic patients and their 151 febrile episodes were evaluated. The mean MASCC prognostic index score was 18,72 ± 9,43. Among 86 patients, 28 patients experienced a total of 30 bacteremia episodes of bacterial origin.Empirical therapy with cefoperazone-sulbactam (CEP-SUL) was modified to carbapenem monotherapy in 59 of 75 (79%) febrile attacks. Empirical therapy with piperacillin-tazobactam (PIP-TAZ) was modified to carbapenem monotherapy in 16 of 22 (73%) febrile attacks. Empirical therapies with CEP-SUL (n:13) or PIP-TAZ (n: 4) in combination with CIP were changed to carbapenem monotherapy in 13 of 17 (77%) febrile attacks.Among patients who received carbapenem in combination with other antibacterials (n = 37), at admission or during FN attacks, without accompanying antifungal therapy, six of them (16%) responded to therapy (Figure.1). Modification rates of both, empirical monotherapy and combination therapies, were found similar, statistically (P = 0,840). No VRE bacteremia developed during the 748 days of colonization in 65 patients. Only two patients who had persistent fever accompanied with diverse clinical findings responded to linezolid treatment. Chemotherapy port catheter line and bone marrow biopsy were performed to patients colonised with VRE as invasive procedures during follow-up. Conclusion: Our results suggest that initiating of carbapenem-based therapy does not provide high response rates in the treatment of febrile neutropenia attacks. Furthermore, non-carbapenem-based empirical therapy provides benefit in regard to cost-effectiveness and antimicrobial stewardship when local antibiotic resistance patterns of gram-negative bacteria are considered. Patients who are colonized with VRE are more likely to develop bacteremia with VRE strains as a result of invasive procedures and severe damage of mucosal barriers observed in this group of patients.

Figure 1. Response rates to non-carbapenem-based therapies and to carbapenem monotherapies in febrile neutropenia attacks (n: 151)