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Which antimicrobial drug-resistant bacteria have been emerging in patients with haematological malignancies?

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Objective: we retrospectively evaluated the bacteremia attacks duringFN episodes with respect to rates of mortality and both response and modification rates of non-carbapenem-based empirical antibacterial therapy as well as vancomycin-resistant enterococci (VRE) colonisation that proceeded to VRE bacteremia in patients with hematological malignancies.

Material and methods: All consecutive patients between September 2011 and September 2012, who were older than 14 years of age and who developed febrile neutropenia episodes during chemotherapy due to hematological cancers in the hematology department were included in the study.

Results: We retrospectively analyzed 68 consecutive patients with neutropenia and their 129 febrile episodes. Mean age was 59.36±15.22 years (range: 17–80 years) and 41 cases were male. MASCC score was 19.56 ± 9.04 in the patients with hematological malignancies. During 129 febrile episodes of 68 patients, 37 (28%) bacteremia attacks were recorded in 20 cases (29%). Carbapenem-resistant Gram negative bacteria were isolated from 6 of 26 (23%) bacteremia attacks including *Acinetobacter baumannii* (n=4), *P.aeruginosa* (n=1), *Serratia marcescens* (n=1). Either central line or port line catheters were removed from patients who had carbapenem-resistant gram negative bacteremia attacks after identification. Two of four cases carbapenem-resistant *Acinetobacter baumannii* and one case with carbapenem-resistant *P.aeruginosa* deceased. All cases with CR-GNB were followed up at only hematology ward and did not contact with any patient colonised with CR-GNB. Rectal, axillary and groin cultures of those cases that were taken to screen colonisation were negative. Carbapenem-resistant isolates developed under carbapenem therapy to treat febrile neutropenic attacks. Only four of 20 (20%) isolates were carbapenem-sensitive and ESBL-producing Gram negative bacteria. Clinical and microbiological responses were achieved with either PIP-TAZ or CEP-SUL therapy in 61% (16/26) of CS-GNB associated blood stream infection attacks of 14 patients. Four carbapenem-sensitive Gram negative bacteremia attacks of 4 cases due to ESBL-producing *K.pneumoniae* (n=2), non-ESBL producing *E.coli* (n=1), ESBL producing *E.coli* (n=1) bacteremia were treated with switching to carbapenem therapy.

VRE bacteremia developed in two patients during the 547 days of colonisation in 21 of 68 (30%) patients. Both were a male patient with non-Hodgkin lymphoma who were survived and a female patient with AML who died of VRE bacteremia. Urine culture of a male patient with AML yielded VRE without symptom. Only two patients who had persistent fever accompanied with distinctive clinical findings (cough, pain in the anal region, ulcerations in oral mucosa, etc.) responded to linezolid treatment.

Conclusions: Necessity of antimicrobial stewardship and de-escalation strategy is obviously seen in our and other hematology wards with high rates of carbapenem-resistant bacteria related infections taking into consideration that appropriate and early initiation of antimicrobial treatment covering the predominant pathogens in healthcare setting according to local epidemiological data is crucial to improve survival.