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Vancomycin-resistant enterococci colonisation and bacteraemia in patients with haematological malignancies: a two-year report

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**Objective:** We retrospectively evaluated the rates of vancomycin-resistant enterococci (VRE) colonization and VRE-related bacteremia in patients with hematological malignancies.

**Materials and Methods:** All patients of the hematology department who were older than 14 years of age and who developed febrile neutropenia during chemotherapy for hematological cancers between November 2010 and November 2012 were evaluated in this study.

**Results:** We retrospectively analyzed 282 febrile episodes in 126 consecutive patients with neutropenia during a two-year study period that included 65 cases in the first year and 78 cases in the second year. The mean patient age was  $51.73 \pm 14.4$  years (range: 17–82 years), and 66 patients were male. The mean number of VRE colonization days per patient was  $34.27 \pm 13.12$  days. The vancomycin-resistant enterococcal species isolated from VRE-colonized patients were *Enterococcus faecium* (81%) and *Enterococcus faecalis* (19%). Vancomycin-sensitive *E. faecium* was also isolated from wound (n=1), urine (n=1) and sputum (n=1) cultures.

VRE were isolated from bronchoalveolar lavage and blood cultures from one patient with pneumonia and dyspnea who was admitted from another hospital. All rectal swab cultures yielded normal flora bacteria and the patient was successfully treated with linezolid. In the first year, no cases of VRE bacteremia developed during 748 days of colonization in 29 patients (44%). In the second year, VRE bacteremia developed in two patients during 547 colonization days in 21 patients (26%). The patients who developed VRE bacteremia were a male patient with non-Hodgkin's lymphoma who survived the infection and a female patient with acute myeloid leukemia (AML) who died of VRE bacteremia. Both isolates were *Enterococcus faecium*. In addition, the urine culture of an asymptomatic male patient with AML yielded VRE. Several cases of vancomycin-sensitive enterococci (VSE)-related bacteremia (n=6) and bacteriuria (n=1) developed in the second year. Of those seven patients, four were male, and the median age was 44 years (range: 25-73). The cases of VSE-related bacteremia were caused by *E. faecalis* (n=4) and *E. faecium* (n=2). Vancomycin-sensitive *E. faecalis* was isolated from the patient with bacteriuria. Only two patients who had persistent fever accompanied by distinctive clinical findings (e.g., cough, pain in the anal region, or ulcerations of the oral mucosa) responded to linezolid treatment. The placement of a chemotherapy port catheter and bone marrow biopsy were the invasive procedures that were performed on patients colonized with VRE during follow-up. No cases of VRE-related bacteremia developed among patients who were not colonized with VRE.

**Conclusions:** Patients with hematological malignancies accompanied by VRE colonization should be expected to develop VRE- or VSE-related bacteremia under certain conditions, including the development of severe mucositis, the administration of invasive procedures, and the use of intensive broad-spectrum antibiotics, even if infection control measures are implemented properly.