Vancomycin-Resistant Enterococci in Fecal Samples among Hospitalized Patients at Fayoum University Hospital

Thesis

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Abstract

Enterococci are members of the gastrointestinal flora that emerged in the last decades as a leading cause of multidrug-resistant hospital acquired infection due to its colonization strategy and genome plasticity.

The aim of this work was to study the frequency of vancomycin-resistant enterococci (VRE) among hospitalized patients at Fayoum University Hospital, determine associated risk factors, assess the antibiotic resistance patterns of the isolated enterococci, determine MIC of isolated VRE by E test and identify VRE up to species level by API 20 Streptococcalsystem.

One hundered hospitalized patients from ICU, internal medicine unit, pediatric unit, surgery unit and the urology unit at Fayoum University Hospital were included in this study. In addition, 50 non-hospitalized individuals were screened for VRE fecal colonization. Specimens were cultured on selective media for the isolation of enterococci. The susceptibilities of the all enterococcal isolates to vancomycin, teicoplanin, linezolid, ampicillin, penicillin,meropenem, imipenem, tetracycline, ciprofloxacin, chloramphenicol and high loadgentamicin weredetermined by the disk diffusion method. The minimum inhibitory concentration and species of VRE weredetermined.

Enterococci were found in 93% of the hospitalized patients and in 100% of non-hospitalized individuals. VRE were isolated from 15% of hospitalized patients and no VRE were isolated from non-hospitalized individuals. High rates of resistance to different antibiotics were observed in hospital isolates compared to community isolates with a significant p value (0.000) as regards to penicillin, ampicillin, oxacillin, amoxicillin/clavulinic, meropenem, imipenem, ciprofloxacin, erthromycin, tetracycline, gentamycin and vancomycin. *E. feacium* was the predominant species (80%) of VRE cases with MIC > 256 μg/ml, while *E. Faecalis* was (20%) with MIC = 192 μg/ml. Long duration of hospital stay, admission to ICU, antibiotic exposurein particularly to (vancomycin, clindamycin, ciprofloxacin, fourth-generation cephalosporinsand imipenem) and exposure to invasive procedures were of most frequently identified risk factors for VRE carriage with significant p value($p<0.05$).

Keywords:

Enterococci, vancomycin-resistant enterococci (VRE), antibiotic resistance.