■ *Original Article*

Characterization and antimicrobial resistance of clinical isolates of enterococci in tertiary care hospital in eastern Nepal

HP Nepal[1], B Khanal[2], A Acharya[1]
[1]Department of Microbiology, Chitwan Medical College, Bharatpur, Nepal
[2]Department of Microbiology, BP Koirala Institute of Health Sciences, Dharan, Nepal

Abstract

Background: Enterococci, commensal flora of humans and animals, can cause variety of infections. They may pose therapeutic challenge due to their resistance to number of antimicrobial agents. Knowledge about the prevalence of their different species and resistance pattern is quite essential for the selection of the appropriate therapy for management of enterococcal infection. **Objective:** to characterize and determine resistance pattern of enterococcal isolates. **Methods:** Enterococci isolated from the clinical specimens submitted to the microbiology unit of clinical laboratory services (CLS), BP Koirala Institute of Health Sciences (BPKIHS) were studied. Characterization and determination of antimicrobial resistance were done by standard microbiological technique. **Results:** Among the 110 isolates studied, 9 different species of Enterococcus were recovered: E. faecalis (66.36%), E. faecium (22.73%), E. saccharolyticus (4.54%), E. cecorum (1.82%), E. avium (0.91%), E. dispar (0.91%), E. gallinarum (0.91%), E. hirae (0.91%) and E. mundtii (0.91%). The isolates were obtained from various clinical specimens from patients of different ages. The resistance observed for different antimicrobials tested was: ampicillin (95.45%), chloramphenicol (14.55%), ciprofloxacin (51.82%), erythromycin (54.54%), gentamicin (53.63%), nitrofurantoin (7.55%), and tetracycline (58.18%). No isolate exhibited resistance to vancomycin. **Conclusion:** Different species of enterococci causing wide spectrum of infections are common in our set up. They exhibited varying frequencies of resistance to almost all the antimicrobials tested. In the context of rising concern about the emergence of high level gentamicin resistant enterococci and vancomycin resistant enterococci, it is recommended to perform screening test and MIC determination to confirm resistance of the local strains to these antimicrobials.

Keywords: enterococci, BPKIHS, characterization, antimicrobial resistance

Introduction

Enterococci are gram-positive cocci that occur singly, in pairs or as short chains.[1] They are indigenous flora of the intestinal tract, oral cavity and the genitourinary tract of the humans and animals but have become important opportunistic pathogens, especially in hospitalized patients.[2]

Address for correspondence
Dr. Hari Prasad Nepal
Asistant Professor, Department of Microbiology,
Chitwan Medical College, Bharatpur, Nepal
Email: drharinepal@gmail.com

Enterococci have gained much attention in the recent years not only because of their ability to cause serious infections like endocarditis, bacteremia, intra-abdominal and urinary tract infection (UTI), but also because of their resistance to a vast array of antimicrobial drugs, including cell-wall active agents, all commercially available aminoglycosides, penicillin and ampicillin, and vancomycin.[3,4]

Since the inception of separate genus Enterococcus, more than 30 different species of enterococci have been identified[5], of which Enterococcus faecalis and Enterococcus faecium accounts for up to 90% of