

TITLE: ANTIMICROBIAL RESISTANCE AND VIRULENCE FACTORS IN ENTEROCOCCAL ISOLATED FROM URINARY TRACT INFECTION

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ABSTRACT:

Urinary tract infection (UTI) is one of the main nosocomial infections. Enterococci are among the main etiological agents of UTIs, with *Enterococcus faecalis* and *Enterococcus faecium* being the most frequently isolated species. Enterococci are intrinsically resistant to multiple antimicrobials and easily acquire resistance; this fact makes it hard to treat infections caused by these microorganisms. The aim of the study was to evaluate the antimicrobial resistance profile and detect the production of virulence factors (gelatinase and hemolysins) in *E. faecalis* and *E. faecium* isolates obtained from UTI patients admitted to a tertiary hospital. One hundred twenty isolates of *E. faecalis* and seventeen of *E. faecium* were evaluated, which were identified by Gram stain and biochemical tests. The sensitivity profile of 15 antimicrobials of different classes was evaluated by the disk diffusion method. Antimicrobials of greater therapeutic relevance (ampicillin, penicillin, vancomycin, gentamicin and streptomycin) were also tested by the broth dilution method. The gelatinase production was analyzed in BHI culture medium supplemented with 12% gelatin. Hemolysin production was observed on blood agar containing 5% defibrinated sheep blood. The results obtained were analyzed using the SPSS program. The prevalence of resistance varied according to the drug and species, although no isolate showed resistance to linezolid and fosfomicin. The prevalence of resistance to beta-lactams (ampicillin and penicillin), nitrofurantoin, norfloxacin, rifampicin, tetracycline, chloramphenicol and glycopeptides (vancomycin and teicoplanin) was significantly higher in the species *E. faecium*. For ciprofloxacin, erythromycin and gentamicin, the prevalence of resistant isolates was similar when comparing the two species of enterococci. Only *E. faecalis* showed resistance to chloramphenicol. All *E. faecalis* isolates were sensitive to nitrofurantoin, ampicillin and teicoplanin. The production of gelatinase was significantly more frequent in the species *E. faecalis* (65.8%; $p < 0.01$), while the production of hemolysins was predominant in the species *E. faecium* (23.5%; $p = 0.04$). The results obtained show important differences in the antimicrobial sensitivity profile and in the production of virulence factors by *E. faecalis* and *E. faecium* causing hospital-derived UTIs

Keywords: antimicrobial resistance, *Enterococcus*, Urinary Tract Infection.