

Nosocomial gram-positive infections and antimicrobial susceptibility pattern of causative microorganisms at a referral teaching hospital in Tehran, Iran

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Background and Aims: The aim of this study was to obtain data on the epidemiology of nosocomial Gram-positive infections in a referral teaching hospital, and to determine the susceptibility pattern of causative microorganisms.

Methods: Over a 1-year period, Gram-positive microorganisms isolated from specimens of hospitalized patients with documented nosocomial infection underwent antimicrobial susceptibility testing using disk diffusion test. Also, possible risk factors for antibiotic multi-resistance were searched using multivariate logistic regression.

Results: During the study period, a total of 137 nosocomial infections were detected. The most frequent infections included bloodstream infection (31.4%), surgical site infection (21.2%), pneumonia (16.8%), and catheter infection (13.9%). *Staphylococcus aureus* was the most frequently isolated microorganism (56.2%) followed by *Enterococcus* spp. (21.9%), and *Staphylococcus epidermidis* (15.3%). All *S.aureus* strains were sensitive to vancomycin, teicoplanin, linezolid, and chloramphenicol. The most effective agents against *Enterococcus* spp. were linezolid (100%) and chloramphenicol (95.5%). More than 50% of enterococci strains were resistant to vancomycin and teicoplanin. Resistance rate of these pathogens to other antibiotics was high. Possible risk factors for antibiotic multi-resistance among isolated pathogens were history of antibiotic use within recent 3 months ($p < 0.001$) and intubation of patient for mechanical ventilation ($p < 0.01$).

Conclusions: This study shows high rate of antimicrobial resistance among nosocomial Gram-positive pathogens complicating antibiotic therapy and its outcomes. This necessitates strict infection control.

Keywords: Nosocomial infection; Gram-positive; Susceptibility