

Frequency of Bacterial Contamination and Antibiotic Resistance Patterns in Devices and in Personnel of Endoscopy and Colonoscopy Units

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Abstract

Background and Objective: This study was aimed to determine the extent of bacterial contamination and drug resistance patterns of isolates colonized in colonoscope and endoscope and in relevant personnel.

Material and Methods: A total of 107 samples were obtained from staff of endoscopy and colonoscopy units (SEU and SCU) and gastroenterological imaging equipment. For isolation and identification of the bacteria, swab culture method and biochemical identification test were used, respectively. Antimicrobial resistance profiles, multi-drug resistance (MDR) patterns and phenetic relatedness of these isolates were also analyzed according to standard methods.

Results: Most frequent pathogenic bacteria among the SEU and gastroenterological imaging related equipments were included *S. aureus* (20.8 % and 0 %); *Enterococcus spp.* (0 % and 5.4%); *Pseudomonas spp.* (0% and 13.5 %), and *Clostridium difficile* (0% and 12.5%). Analysis of resistance phenotypes showed a high frequency of MDR phenotypes among the SEU (82.1%), and also in endoscopes, colonoscopes, and other equipments (20%, 50% and 100%, respectively). Phylotyping of *S. epidermidis* isolates showed the role of staff in transmission of resistance strains to medical equipments and also circulation of strains with identical resistance phenotype among the studied samples.

Conclusion: High frequency of pathogenic bacteria in colonoscopes, endoscopes and in the staff of endoscopy & colonoscopy units, and also contamination of these instruments with MDR pathogens emphasize the need for proper disinfection of endoscopes and colonoscopes and also instruction of staff in these units.

Key words: Bacterial Contamination; Endoscope; Colonoscope; Antimicrobial Resistance; Gastrointestinal Disease.