

Analysis of microbial load on single-use reprocessed laparoscopic instruments after clinical use and following two different manual cleaning methods

Sorour Mosleh¹, Hossein Fazeli², Akram Aarabi³, Mohammad sadegh Aboutalebi⁴

¹- Master science in perioperative care, Isfahan University of Medical Sciences, Isfahan, Iran

²-Department of Microbiology, Faculty of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran

³- Nursing and Midwifery Care Research Center, Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran

⁴- Instructor, Department of Nursing, Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran

Email address: mosleh²²@yahoo.com

Abstract

Introduction: An accurate cleaning as the first step of reprocessing would make the sterilization more effective; protects the healthcare providers and patients against infections. We aimed to monitor the microbial load and identify the microorganisms recovered from laparoscopic instruments after clinical use and following two different manual cleaning methods (conventional (routine) and the Association for the Advancement of Medical Instrumentation (AAMI) cleaning methods).

Method: This Experimental study was carried out in the educational hospital of Isfahan University of Medical Sciences, Iran, 2017. Microbial samples were taken from 120 laparoscopic instruments that were randomly divided into two groups: conventional and AAMI cleaning methods. The Number and types of microorganisms which isolated from the Sabouraud Dextrose Agar, Blood Agar and MacConkey Agar media were determined.

Results: The average microbial load was 2.4×10^6 CFU/100ml after clinical use, (CFU: Colony Forming UNIT). It was reduced to 2.2×10^5 CFU/100ml in the conventional group and 3.4×10^4 CFU/100ml in the AAMI group, after cleaning process. This reduction was significantly higher in the AAMI group than in the conventional cleaning group ($p < 0.05$). Escherichia Coli (81.2%),

Pseudomonas Aeruginosa (78,8%), Klebsiella (94,8%), Staphylococcus (90%) and Enterobacter (82,2%) were recovered.

Conclusion: The average microbial load observed after the cleaning steps decreased, and the decrease in microbial load was more pronounced using the AAMI cleaning method compared with that observed using the conventional cleaning methods.

Keywords: Patient safety, Medical device reprocessing, Infection Control, Microbiology