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PS-028. Evaluation of efficacy of endoscope reprocessing by ATP method and bacterial cultivation

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Introduction
Flexible endoscopes are categorized as semi-critical devices according to the Spaulding Classification System and high-level disinfection (HLD) for reprocessing is needed. The manual cleaning (MC) phase has been shown to be the process most prone to human error. To reduce the risk of human error and infection transmission the efficacy of reprocessing method should be evaluated continuously. Microbiological surveillance methods can be classified into two kinds: microbial culture and non-culture methods, eg. bioburden assays, adenosine triphosphate (ATP) bioluminescence.
Method
Data was collected during 34 endoscope encounters which occurred in August 4-28, 2016. All reprocessing steps were performed in accordance with guidelines. Three samples were taken for each endoscope: before and after manual cleaning and after HLD. Samples were taken from the surface and the inner channel of endoscopes by swabbing and distilled water infusion methods, respectively. ATP levels were detected using Clean-Trace Surface ATP and Clean- Trace Water ATP tests (3M, USA). The technique measures ATP in a sensitive luminometer with results usually expressed as Relative Light Units (RLU). The proposed criterion is achieved when the bioluminescence reading is <200 RLU. For bacterial culture, samples were inoculated on sheep-blood agar plates and incubated overnight. Pathogen identification was performed by culture on chromogenic agar and MALDI-TOF MS.
Findings
There was no bacterial growth in samples taken from the surfaces after MC. The reduction of colony number in samples taken from channels was more prominent after HLD than MC although it was not statistically significant. Significant decrease in ATP levels was detected after MC and HLD for both surface and channels ($p<0.05$; Fig.1). ATP levels except three samples were in acceptable limits after HLD.
Result
We may conclude that ATP measurement can provide a reliable, rapid and practical assessment of endoscope cleanliness for routine monitoring in the clinical setting.

Keywords: endoscope, reprocessing, ATP

Fig 1. Microbiological surveillance results of endoscopes by using ATP bioluminescence.