P1083
Paper Poster Session
Disinfection and healthcare-associated infections

Evaluation of a new process for thermolabile gastrointestinal endoscope storage: results of the first hundred microbiological samples

Constance Minebois*[1], Philippe Saviuc[1], Jacqueline Shum[1], Patrick Tuvignon[2], Isabelle Pelloux[3], Marie-Pierre Brenier-Pinchart[4], Caroline Landelle[5], Marie-Reine Mallaret[5]

[1]*Centre Hospitalier Universitaire de Grenoble, Unité D'hygiène Hospitalière, Grenoble, France*

[2]*Centre Hospitalier Universitaire de Grenoble, Endoscopie Digestive, Grenoble, France*

[3]*Centre Hospitalier Universitaire de Grenoble, Bactériologie-Hygiène Hospitalière, Grenoble, France*

[4]*Centre Hospitalier Universitaire de Grenoble Et Université Grenoble-Alpes, Parasitologie-Mycologie Et Laboratoire Lapm (Umr 5163 Cnrs-Ujf), Grenoble, France*

[5]*Centre Hospitalier Universitaire de Grenoble Et Université Grenoble-Alpes, Unité D'hygiène Hospitalière Et Themas Timc-Imag (Umr Cnrs 5525), Grenoble, France*

Background: Gastrointestinal (GI) endoscopes are thermosensitive medical devices and cannot be sterilized by autoclaving. In France, regulation provides that an endoscope must be used into a delay of 12 hours (h) after disinfection. Storage cabinets for heatsensitive endoscopes allow increasing this delay to 72h. After these delays, disinfection should be redone before endoscope utilization. SureStore® (Medical Innovation Group) is a new alternative solution for endoscopes storage that used injection of Hydrogen Peroxide solution and air evacuation. Manufacturer indicates a delay of storage of several weeks. Our objectives were to evaluate the level of microbiological contamination of endoscopes stored with SureStore® up to 14 days (d) after disinfection and to evaluate risk factors for contamination.

Material/methods: A prospective study was conducted from July 15, to October 15, 2015 in a French teaching hospital. GI endoscopes were first, treated using an automated endoscope reprocessor (AER), second, treated into SureStore® and last, stored in standard non-ventilated cupboards. Microbiological samples of endoscopes were collected on 38 GI endoscopes: 17 gastroscopes (G), 13 colonoscopes (C), 5 duodenoscopes (D) and 4 echoendoscopes (EE). Conformity level was defined by less than 25 colony-forming units and absence of *Enterobacteriaceae*, *Pseudomonas* sp., *Stenotrophomonas maltophilia, Staphylococcus aureus, Acinetobacter* sp. and *Candida* sp.. Sterility level was defined by absence of bacteria and yeasts. Levels were analyzed according to type of endoscope (G, C, D, EE), sampling context (standard, after repairs/on new device, after accidental re-pressurisation), delay between exit of AER and treatment into SureStore® (<1h, 1-2h, >2h), and duration of storage (≤3d, 4-7d, 8-10d, 11-14d).

Results: A total of 100 samples were collected: 31 for storage duration ≤3d, 34 for 4-7d, 11 for 8-10d and 24 for 11-14d. Conformity level was 98%. Risk factors of contamination cannot be evaluated.

Sterility level was 60% and wasn't associated with duration of storage (48% for storage ≤3d, 65% for 4-7d, 45% for 8-10d and 75% for 11-14d; p=0.15) and type of endoscope (72% for G, 45% for C, 72% for D, 50% for EE; p=0.06). Sterility level was significantly associated with sampling context (63% for standard context, 46% after repairs/on new device, 50% after accidental re-pressurisation; p=0.006) and delay between exit of AER and storage with SureStore® (69% for delay <1h, 52% for 1-2h, 12% for >2h; p=0.005).

Conclusions: Our preliminary results demonstrate that SureStore® allows GI endoscopes to maintain a conformity level of 98% up to 14d after disinfection. Sterility level wasn't associated with storage duration. The delay between exit of AER and storage with SureStore® should be less than 1h because sterility levels decrease after 1h. This device could reduce number of endoscope disinfection, thus nursing workload and endoscopes' wear. Further research is needed to validate SureStore® for other type of endoscopes.