Challenging the six-hour recommendation for reprocessing sterilisable medical equipment

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**Background**

At present, the reprocessing of sterilisable medical equipment is recommended to be initiated no later than six hours after completion of surgery, to ensure that the quality of the instrument does not deteriorate. A literature search showed a lack of evidence for the consequences that may occur if medical personnel deviate from the standard six-hour sterilisation protocol.

**Aim**

This study challenges the six-hour recommendation for reprocessing sterilisable medical equipment. We investigate whether an increase in residual protein content is present proportional to holding time before reprocessing is initiated, and whether an increase in corrosion is present on surgical scissors proportional to holding time before reprocessing is initiated.

**Method**

Residual protein was identified on surgical instruments contaminated with human blood after different holding times and before washes using the o-phthaldialdehyde (OPA) method. Corrosion was identified on surgical scissors contaminated with human blood after different holding times and before reprocessing using light stereomicroscopy and scanning electron microscopy (SEM).

**Results**

Protein residues ranged between 14.0 μg and 51.9 μg and thus below the accepted threshold of 100 μg per instrument surface. Corrosion was identified on 22 of 30 scissors. Corrosion was identified as areas with red-coloured deposits and lighter discoloration corresponding to 0.05% of the surface. Pitting corrosion was identified on four out of 30 scissors.

**Conclusion**

No association was identified between residual protein and holding time as well as between incidence of corrosion and holding time. The study thereby challenges the relevance of upholding the recommendation of a maximum wait of six hours before reprocessing. The findings will potentially have an impact on the organisation of reprocessing of surgical instruments in Denmark and Internationally.