

P0822 **Evaluation of the antimicrobial activity of different antiseptic agents against *Staphylococcus aureus***

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Background: Today, *Staphylococcus aureus* is one of the most common pathogens associated with wound infection. Due to the increased prevalence of multidrug-resistant strains, we aimed to evaluate the antimicrobial activity of clinically available antiseptic agents against *S. aureus*, carrying different resistance genes.

Materials/methods: *In vitro* experiments were performed to appraise bacterial reduction after exposure of different *S. aureus* isolates to octenidine (OCT), chlorhexidine (CHG), PVP-iodine or polyhexanide (PHMB), respectively. The isolates varied in the number of genes encoding multidrug efflux pumps (e.g. *qacA*, *qacB*, *smr*, *norA*, *ImrS*, *mepA*, and *sepA*), all associated with decreased efficacy to disinfectants. The experiments were performed following the European Norm EN13727 using antiseptic agents at clinical relevant concentrations (0.1% OCT; 0.1, 0.5% and 2% CHG; 1% and 10% PVP Iodine; 0.1% PHMB). Quantitative suspension tests were performed (i) without organic load as well as with (ii) 0.3% mucin and (iii) 3 g/L BSA + 3 mL/L ovine erythrocytes to simulate different organic challenges, which is highly recommended for application on mucous membranes or wounds. Reduction factors were calculated after defined contact times (30 sec, 5 min, 10 min); a 5 log₁₀ reduction was considered effective according to EN13727.

Results: All tested *S. aureus* isolates showed sensitivity against OCT at clinical concentrations, not only without organic load but also in the presence of bioburden, even for a short contact time of 30 sec. Sensitivity against CHG, PHMB and PVP iodine was observed at clinical concentrations, under all conditions tested, but only for longer contact times (≥ 5 min).

Conclusion: OCT showed highest efficacy against *S. aureus* isolates, encoding for multidrug efflux pumps in clinically used concentrations and short contact times, either under organic or non-organic conditions, confirming its potential in wound and mucous membrane antiseptic. Selection of organic material is of substantial relevance in context with effectiveness of antiseptics.