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Tags Antiseptics, chronic wounds, DIN EN 13727, organic challenge, wound exudate

Title **Impact of human wound exudate on the bactericidal efficacy of commercial antiseptic products**

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Aim of the study The antimicrobial effectiveness of antiseptics is tested *in vitro* according to DIN EN 13727 as standard, with bovine albumin and sheep erythrocytes being used to simulate the organic loads. However, it has not been clarified, if these test conditions adequately simulate the wound bed environment. Therefore, the aim of this study was to compare the antimicrobial effectiveness of antiseptic products under the load of animal albumin/ erythrocytes and human wound exudate.

Methods The antimicrobial efficacy of antiseptic products was determined over a period of 30 min with samples being collected at different time points. The test was conducted according to DIN EN 13727 under challenge with standardized organic load and pooled human wound exudate. The investigated antiseptic products were based on octenidine dihydrochloride (OCT) and phenoxyethanol (OCT/PE), polyhexamethylene biguanide (PHMB), and povidine-iodine (PVP-I). Ringer solution was used as negative control.

Results Except for octenisept®, all tested antiseptics showed a reduced bactericidal effectiveness when using wound exudate compared to their effectiveness under a standardized organic load. The extent of this reduction was particularly pronounced for products which were based on PHMB or PVP-I. In case of octenisept®, which is based on OCT/PE, full bactericidal effectiveness was already achieved after 15 seconds under both test conditions.

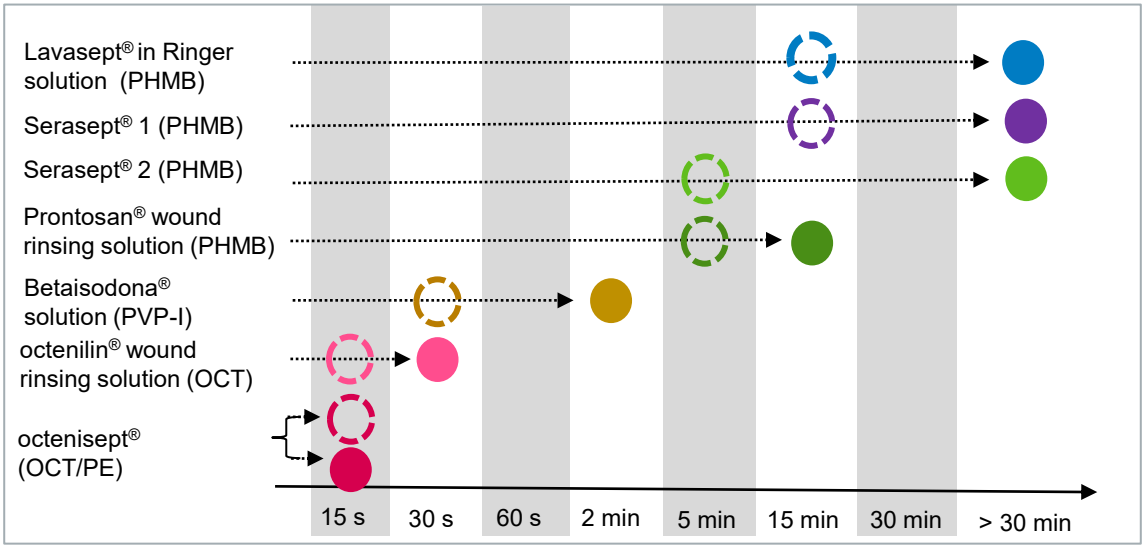

Figure 1: Contact time required for antiseptics to achieve 5 log reduction in bacteria according to DIN EN 13727. Antiseptic effectiveness was challenged with either pooled wound exudate (filled circles) or with 0.3% bovine albumin and 0.3% sheep erythrocytes (dashed circles).

Conclusion **In contrast to all other tested antiseptics, in case of octenisept ®, the presence of wound exudate had no impact on the contact time required to achieve 5 log reduction. Full bactericidal effectiveness was already achieved after 15 seconds using octenisept ®.**

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octenisept® • **Active substances:** octenidine dihydrochloride, phenoxyethanol (Ph.Eur.). **Composition:** 100 g solution contain: 0.1 g octenidine dihydrochloride, 2.0 g phenoxyethanol (Ph.Eur.). Other ingredients: cocamidopropylbetaine, sodium D gluconate, glycerol 85%, sodium chloride, sodium hydroxide, purified water. **Indications:** For repeated, short-term antiseptic treatment of mucous membranes and adjacent tissues prior to diagnostic and surgical procedures - in the ano-genital region including the vagina, vulva and glans penis as well as prior to bladder catheterization - in the oral cavity. For short-term supporting therapy of interdigital mycotic infections and adjuvant antiseptic wound treatment. **Contraindications:** octenisept® may not be used in cases of hypersensitivity to any of the components of the preparation. octenisept® should not be used for rinsing the abdominal cavity (e.g. intra-operatively) or the bladder, nor the tympanic membrane. **Undesirable effects:** rare: burning, redness, itching and warmth at the application site, very rare: allergic contact reaction, e.g. temporary redness at the application site; frequency unknown: after lavage of deep wounds with a syringe, persistent edema, erythema and also tissue necrosis have been reported, in some cases requiring surgical revision. Rinsing of the oral cavity may cause a transitory bitter sensation. Revision 11/18

To prevent possible tissue injury, the product must not be injected into the deep tissue using a syringe. The product is intended for superficial use only (application by swab or spray pump).

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