

A new antimicrobial HydroBalance wound dressing with polihexanide*, first in vitro and clinical results

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Introduction:

Bacteria and their endotoxins as well as the increasing biofilm could impair the wound healing (1-4). In case of a wound infection, the reduction of the bacterial load to a normal contamination is, beside a potential systemic antibiois, one of the important tasks of a wound dressing.

The antimicrobial polihexanide containing HydroBalance wound dressing* is a sterile product of cellulose, water and 0,3% polihexamethylene biguanid (polihexanide). The following capabilities of this dressing should be researched: Reduction of bioburden, promotion of wound closure, reduction of wound pain, granting of a moist wound environment.

Material and Methods

Biocompatibility studies and in vitro studies to test the antimicrobial effects on different bacteria especially MRSA and VRE were performed using a variety of methods.

20 patients with infected wounds of different etiologies (e.g. diabetic foot ulcer, lower leg ulcer) were included in this mono-center evaluation until a autolytic debridement was achieved (a surgical debridement was accomplished if necessary)

Results

The antimicrobial effects on bacterias of different strains (e.g. staph. Aureus, ps. Aeruginosa, e. coli, MRSA, VRE) could be shown in vitro.

In vivo, the antimicrobial polihexanide containing HydroBalance wound dressing* was very succesful in the reduction of the clinical signs of an infection, induced a quick and complete debridement of the wound bed.

Granulation tissue appeared in a few days, the bioburden reduction was significant.

Pain reduction was the most impressive experience for the patients.

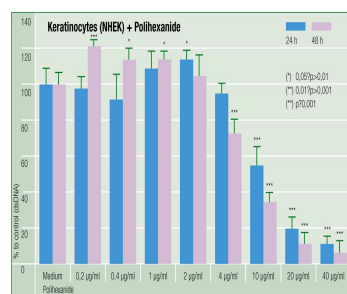


Fig. 1: Change of double-stranded DNA (dsDNA) in cultured normal epidermal human keratinocytes (NEHK) ¹

* = Suprasorb® X+PHMB

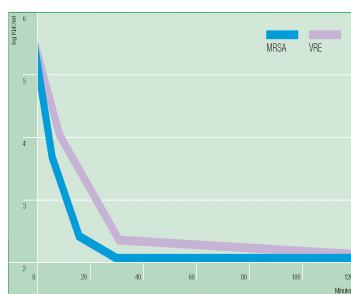


Fig. 2: Cytotoxicity study of Suprasorb X® +PHMB, based on the requirements on the ISO, 10993-52 ²

Case 1



Day 1: 1.050.000 CFU (pseudomonas a.; proteus mirabilis; staphylococcus a.)
Day 6: 2000 CFU (micrococcus)

Case 2



Day 1: 100.000 CFU (Ps. aeruginosa, St. aureus)
Day 6: 0 CFU

Anatomic difficult areas: Cutting with a scissor, double-layer possible



References

1. Kramer et al, Polyhexanide-antimicrobial efficacy and biocompatibility, EWMA 2006
2. Suprasorb X+PHMB Technical information. Data on file

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