

Evaluation of cellulose and polyhexamethylene biguanide (Suprasorb® X+PHMB) in therapy of infected wounds

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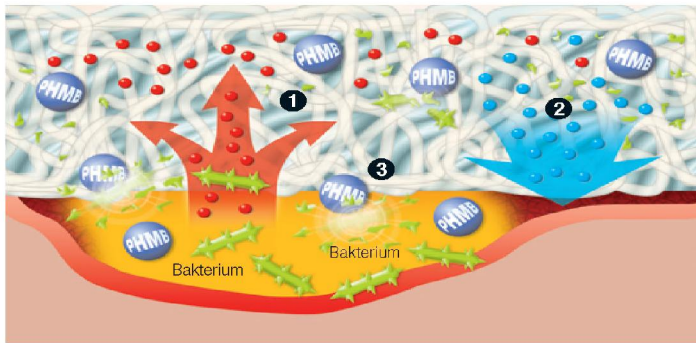
Introduction:

Wound exudate management and control of bacterial colonisation are two main aims in modern wound treatment. The efficiency of a new wound dressing containing cellulose and polyhexamethylene biguanide (polihexanide, PHMB) are evaluated in this descriptive study.

Material and Methods

The dressing consists of biocellulose which is synthesized by *Acetobacter xylinum*. The special prepared nanostructure allows biosynthesized cellulose to have a high-fluid capacity and formability. The product shows a good biocompatibility. Depending on the wound environment biocellulose can donate moisture or absorb excessive exudate.

PHMB is integrated as a powerful antimicrobial agent. The study includes 40 patients, each suffering of delayed wound healing for at least 3 weeks, and signs of critical colonisation/infection. The progress of wound healing was evaluated by a colorimetric wound healing analyzing tool (WHAT). Furthermore the quality of life was evaluated during application and dressing changes.



Results

In 32 out of 40 patients the share of granulation tissue was increased, as a result of sufficient reduction of bacterial colonization (granulation tissue start point 12% (+/- 18%), end point 79% (+/- 24%) in 27 days (+/- 25; n = 40). In 5 patients no progress was measured. All of these were infected with *Pseudomonas aeruginosa* with signs of biofilm formation.

Due to systemic infection in 3 patients, antibiotic treatment had to be started.

The pain while application was according to Visual Analogue Scale VAS 0, whereas during the treatment pain was ranging from 1 to 3.

Conclusion

The right choice of a secondary bandage was essential for the success of the therapy (preventing cellulose from running dry). A real start of wound healing was seen (increase of granulation tissue in 3,1% per day and the reduction of clinical signs of local infection disappeared after 3,4 (+/- 10,5) days. Cytotoxicity and allergies were not noticed. Suprasorb X+PHMB with biosynthesized cellulose and polyhexamethylene biguanide is an effective exudate managing dressing with antimicrobial power, a significant reduction of pain during the period of treatment as well as a very good tolerance.

Case:

Female, 61 years old
Superficial venous insufficiency
Treatment before: hydrocolloids, no compression
Ulcer duration: 8 months
VAS before/after 6 weeks: 9/1
Healed after 42 days



Specification of Woundsize:

outline:	87.74 mm
area:	194.36 mm ²
max. length:	26.51 mm
max width:	20.99 mm
	rel in % abs. in mm ²
fibrin:	75.32 146.39
granular:	23.62 45.91
necrosis:	27.97 2.06

Locally infected ulcer cruris venosum; Start: 29.10.07



Specification of Woundsize:

outline:	21.98 mm
area:	26.28 mm ²
max. length:	6.67 mm
max width:	6.44 mm
	rel in % abs. in mm ²
fibrin:	0.00 0.00
granular:	100.00 26.28
necrosis:	0.00 0.00

After approx. 1 month (22.11.07, day 24)



Specification of Woundsize:

outline:	16.92 mm
area:	13.27 mm ²
max. length:	5.35 mm
max width:	4.86 mm

no local infection after 42 days (10.12.07, day 42)

Cellulose

