IS POLIHEXANIDE A NEW EFFECTIVE TREATMENT FOR INFECTED WOUNDS FOR FRANCOPHONE COUNTRIES?

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INTRODUCTION

Chronic infected or critically colonized wounds have always posed a particular problem in their care. In Germany, Austria and the United Kingdom a number of experts have published recommendations regarding the use of PHMB in the treatment of infected wounds. It is a selective antiseptic with a broad spectrum, well tolerated and with no systemic absorption. To date few publications or interventions in French have dealt with this new therapeutic approach.

MATERIALS AND METHOD

- Polihexanide (PHMB), an antimicrobial is able to penetrate bacterial membranes, causing leakage of cytoplasma. The relative neutrality of phospholipids in human cells explains PHMBs' low toxicity to its use in wounds. (2) The mechanism of action is similar to that of natural antibacterial proteins. (1)
- Biocompatibility: biocompatibility index (BI)> 1 allows to consider its use in critically colonized chronic or acute wounds. (3)
- Reduction of biofilm especially when in gel form and associated with a surfactant such as glycine betaine**** (4).
- A residual effect was found in vaginal gels and bacterial colonies in dental plaque (5).
- Eye drops for treatment of amoebic keratitis (6)
- Few contra-indications or precautions for application of PHMB (7).
- Broad-spectrum: Gram-negative bacilli, Gram positive bacilli, yeast, amoebas, HIV envelope.
- The concentration of biocide: S aureus: 0.1µg/ml, Streptococcus faecalis: 5µg/ml, Ecoli: 5µg/ml, Enterobacter cloacae: 5µg/ml, Pyocianique: 25µg/ml.
- The various products containing PHMB available in France:

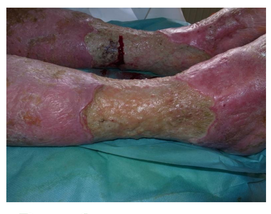
  Compress* containing 0.2% PHMB.
  Dressing** containing 0.5% PHMB.
  Dressing*** containing 0.3% PHMB.
  Solution for rinsing and lavages**** containing 0.1% PHMB.
  Hydrogel for treatment of injuries****: containing 0.1% PHMB.
- Indications: Wounds acute or chronic, secondary infection or critically colonized without evidence of spreading infection.
- Long duration of treatment with PHMB is not recommended to date.

RESULTS

Our experience with PHMB is shown in 2 patients with infected venous leg ulcers :

Case 1 :

Patient aged 75 with a myeloma, many cardiovascular risk factors and venous ulcers since several months. With the treatment of PHMB containing compresses* we were able to control the infection in 8 days, without maceration and stimulating granulation. However bleeding occured upon dressing removal. This could be controlled with the use of a foam or a wound contact layer. The results obtained encouraged us to apply a bio-cellulose dressing*** + PHMB for critically colonized or infected, exuding wounds.



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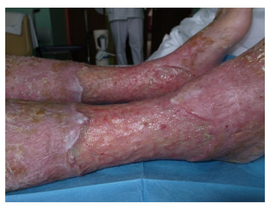

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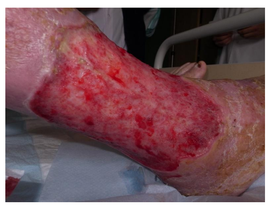

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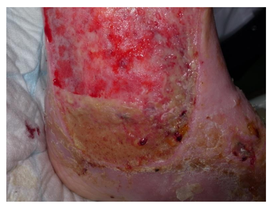

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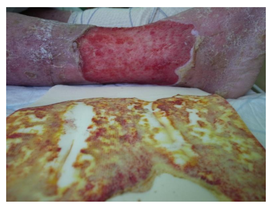
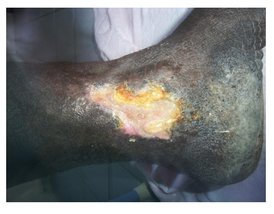


Day 9

Case 2 :

Patient of 78 years of Caribbean origin and residing in a nursing home since five years, with: overweight, chronic venous insufficiency and hypertensive heart disease. For 2 years she is suffering from malleolar venous ulcers that periodically are infected. The use of a ***PHMB containing bio-cellulose dressing and compression bandages enabled healing of the three ulcers in 45 days. Making dressings and their changes were simple and painless. Exudate management of the moderately exuding ulcers was efficient showing effective ulcer closure.



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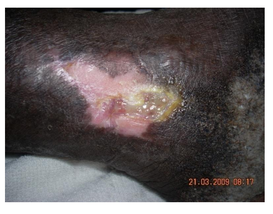

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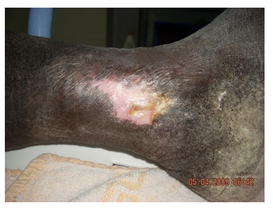

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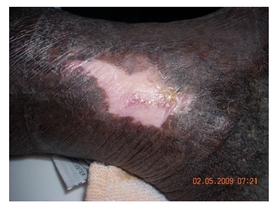

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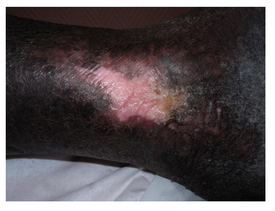

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CONCLUSION

Following our clinical experience with PHMB in thirty wounds we concluded the following: PHMB seems to have a place in treating infected wounds based on the following:

- Biocidal effet
- Reduction of biofilm.
- Reduction of slough (8)
- Good durability
- No known resistance to date
- Very good tollerance
- Biocompatibility index >1.

Although Anglo-Saxon published data is promissing the use of PHMB for the treatment of critically colonised and infected wounds in larger scale RCTs.

***IB**: rapport entre l'IC 50 des fibroblastes murins (50% de mortalitée) et la réduction de 99.9% des germes, si l'IB<1 indique toxicité est supérieure à effet biocide.

References : (1) (Werthen et al ,2004) / (2) (kramer et al :Polihexanid,2008) / (3) (Muller,kramer 2008) / (4) *(Harbs et al,2007) / (5)(Rosin et al,2002) /* (6) (*Anane et al ,2008) / (7)* (*Dissemond et al ,2010) / (8) (Daeschlein et al,2007 ; Korber et al,2008)*

***AMD Kerlix ®, Covidien; ****AMD Kendall®, Covidien; *****Suprasorb® X + PHMB, Lohmann & Rauscher; ******Prontosan®, *******Prontosan® gel, BBraun**

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