QUICK FACT CARD

PHMB

The effective management of bacterial bioburden is an essential element of wound care. Recent years have seen the increased use of topical antimicrobial dressing products to control colonisation and infection and yet there is concern that some preparations may inhibit wound healing and may have systemic consequences.

PHMB

The antiseptic agent polyhexamethylene biguanide (also known as polihexanide or PHMB) is a fast-acting biguanide compound composed of a synthetic mixture of polymers, which can damage bacterial cell membranes and DNA, killing bacteria without damaging animal cells. PHMB is effective on both planktonic bacteria and bacterial biofilms.

Studies have shown PHMB to be effective in vitro, and in clinical studies against a broad spectrum of micro-organisms including bacteria, yeast, fungi and viruses making it a potent antimicrobial and antiviral treatment in wound care.

KEY features of PHMB

- Targeted action on bacterial cells
- Biocompatibility index >1
- No known risks of adsorption
- No known toxic risks
- Low risk of contact sensitisation.

Comparative tests of PHMB’s biocompatibility, (measurement of an antiseptic agent’s activity in relation to its cytotoxicity) against other commonly used therapies have demonstrated its superiority to chlorhexidine, povidone-iodine, triclosan, silver and sulfadiazine. In addition, no known resistance to PHMB has been reported.

PHMB-based wound care

PHMB has been successfully introduced into wound care within a range of wound care products. These products are varied and offer the clinician alternative methods of using PHMB to obtain optimal bioburden management.

Suprasorb® X+PHMB

For critically colonised & infected wounds

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Products incorporating PHMB include:

- Solutions and gels (e.g. Prontosan® wound irrigation solution and wound gel (B. Braun Medical Ltd), which contains 0.1% solution of PHMB)
- Non-adherent bacterial-barrier products (e.g. The AMD™ range of infection control dressings (Covidien) which are impregnated with 0.2% PHMB. The product range includes Telfa™ AMD non-adherent wound dressings, Kerlix™ AMD gauze dressings and Excilon™ AMD drain and intravenous sponges). These are all class IIb products
- Biocellulose PHMB-donating dressings (e.g. Suprasorb® X+PHMB (Activa healthcare - a Lohmann and Rauscher company), which incorporates 0.3% PHMB). These are all class III products

In current classification dressings on the market (EU classification IIb) the PHMB molecule has been chemically bound to the base material, providing it with antimicrobial properties when in contact with wound moisture; the product therefore protects against the development of wound infection by decreasing the bacterial load in the dressing and prevents bacterial penetration through the dressing.

In PHMB-donating products (EU classification III) the active component is not chemically bound to the dressing material and is free to be delivered into the wound and peri-wound tissues; the dressing in this case being a carrier for a wider antimicrobial activity by donating PHMB to the wound itself.

In clinical practice, wound care products incorporating PHMB have been shown to have positive effects on wound healing. In vitro and in vivo studies have shown that, in some of these products, the influence of PHMB:

- Reduces wound pain rapidly and effectively
- Reduces wound odour
- Increases granulation tissue formation
- Increases keratinocyte and fibroblast activity
- Reduces slough within the wound
- Reduces MMP-induced periwound breakdown
- Assists in removing non-viable tissue.

The success of the product has resulted in its recommendations as the primary antimicrobial product in many European countries and has prompted the publication of a UK consensus review in 2010.

PHMB meets the criteria of an ideal antimicrobial agent as described by Drosou et al (2003) and is available in presentations that provide clinicians with effective wound care modalities for most clinical scenarios. Clinical use both in the UK and the wider healthcare community has shown PHMB-based wound-care products to be effective options in managing wound colonisation and infection and deserve closer scrutiny.

References

- For references see: Butcher M (2012) PHMB an effective antimicrobial in wound bioburden management. Br J Nurs 21(12)

For more information on PHMB, Suprasorb X+PHMB and other Activa wound care products, visit www.activahealthcare.co.uk