

A CLINICAL CASE STUDY ON A CATEGORY 4 PRESSURE ULCER USING A PHMB AND BETAIN SOLUTION AND GEL*¹ AND IONIC SILVER WOUND CONTACT DRESSING*²

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Introduction

The spread of antibiotic-resistant strains of micro-organisms such as methicillin-resistant staphylococcus aureus (MRSA) represents an ever-increasing threat to the health of vulnerable people throughout the world who are obliged to spend extended periods in health care facilities. The organism is also responsible for increasing the financial burden placed on such centres and the wider community at large, with the result that precious financial resources are diverted from other areas of need. Staphylococcus aureus is a gram-positive bacterium that exists as a skin commensal in a significant proportion of the population. Despite its ubiquitous nature, it is a recognised potential pathogen, with the ability to cause a wide range of infections from localised skin eruptions to life-threatening conditions such as bacteraemia, endocarditis and pneumonia. Staphylococcus aureus is one of the most common causes of hospital acquired (nosocomial) infections and its pathogenicity is due, at least in part, to the production by the organism of coagulase, an enzyme that clots plasma and thus inhibits host defence mechanisms with the consequences of infection.

"A biofilm is a complex community comprising of a mixed population of different micro-organisms. It is typified by the secretion of extracellular polymeric substance (EPS), a glue that protects the bacteria and holds the community together" (Wolcott et al, 2008). Biofilms are often difficult to detect visually but delay wound healing.

The PHMB and Betaine solution and gel¹ unique ingredients "knock out" biofilm and debris, effectively preparing the wound bed for healing.

Betaine, an effective surfactant which is able to penetrate, disturb, clean and remove the biofilm and wound debris and Polyhexanide (PHMB), a highly effective broad spectrum antimicrobial agent that can reduce bioburden.

Ionic silver is active against a wide range of pathogenic organisms but not all forms of silver exhibit antimicrobial activity. The ionic silver wound contact dressing² is a silver alginate wound dressing. It consists of an absorbent foam sheet, one surface of which is coated with an alginate matrix containing ionic silver together with a 'cleanser, moisturiser and a superabsorbent starch co-polymer'.

References

- *1 B. Braun Medical Ltd, Prontosan® Irrigation Solution and Gel
- *2 B. Braun Medical Ltd, Askina® Calgitrol Ag

Patient

Mr X is a 49 year old gentleman who was admitted into hospital with a category 4 pressure ulcer. He has a history of spina bifida and is immobile, spending his day confined to a wheelchair but is independent with activities of daily living.

On examination, the pressure ulcer was 15cm x 20cms with necrotic tissue covering 100% of the wound. Wound swab identified MRSA.

The decision was made to, firstly, sharp debride the necrosis and then apply the PHMB and Betaine solution and gel¹ to remove biofilms and complete the debridement process. To aid the debridement process the ionic silver wound contact dressing was applied which controlled the exudate and provided an active concentration of silver ions against the micro-organisms on the wound bed.

Method

Day 1 On admission into hospital a photograph was taken (Fig 1a and 1b).

A layer of gauze soaked in the PHMB and Betaine solution¹ was placed onto the necrotic tissue for 15 minutes prior to applying the PHMB and Betaine gel¹. The ionic silver wound contact dressing² was applied with an adhesive film to secure in place. It was agreed to change the dressing every alternate day until the necrosis was softened, revealing soft yellow slough. Following debridement of the necrosis dressing changes were undertaken on a daily basis to manage the copious amounts of exudate.

Day 20 A further photograph was taken (Fig 2a, 2b, 2c and 2d). Size had reduced to 11cm x 15cm. The slough had reduced by 90% and the treatment continued. Dressing changes were reduced to twice weekly.

Day 26 A further photograph was taken (Fig 3a, 3b and 3c), revealing reduction in wound size (10.5cm x 14.75cm) and slough was minimal.

Discussion

Nursing staff found the application of PHMB and Betaine solution and gel¹ was simple, straightforward and effective, providing rapid debridement of eschar without causing trauma to the wound. The ionic silver wound contact dressing² also contributed to the speedy result with the reduction of infection leading to wound progression as well as controlling exudate from which we saw no maceration to surrounding skin.



Fig 1a



Fig 1b



Fig 2a



Fig 2b



Fig 2c



Fig 2d



Fig 3a



Fig 3b



Fig 3c