CASE STUDY: MANAGING RESISTANT INFECTION AND ASSOCIATED SYMPTOMS FOR A PATIENT ATTENDING A COMMUNITY WOUND CLINIC WITH A RECURRENT LEG ULCER USING A COMBINATION TREATMENT OF POLYHEXANIDE (PHMB) AND BETAINE WOUND IRRIGATION* AND IONIC SILVER ALGINATE** DRESSING

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Background/Introduction

Wound infection presents many challenges for health-care professionals and can be the cause of severe symptoms for patients, with sometimes devastating results such as amputation, septicaemia and death. Symptoms of wound infection include pain, increased exudate, failure to heal, malodour, to name a few (European Wound Management Association EWMA 2005). These symptoms can have detrimental effects on patient's wellbeing (Wounds International 2012a). Chronic wounds such as leg ulcers are colonised by various microorganisms and, as such, may have an abundance of biofilms (James et al 2008) which, by their nature, protect themselves against the effects of cleaning solutions, antibacterial and antiseptic substances, including antibiotics. Multiple strategies are required at the same time to continually suppress the biofilm (Wolcott et al 2009) and alleviate the symptoms presented to the patient. These strategies include a combination therapy of antibiotics, wound bed preparation by debridement and topical anti-microbial agents.

A 78 year old man with recurrent venous leg ulcers (VLU) was referred to the Complex Wound Clinic (CWC). A case study was undertaken to evaluate the effectiveness of using a combination treatment of Polyhexanide (PHMB) and Undecylenamidopropyl Betaine (Betaine) wound irrigation solution* and ionic silver alginate** dressing to reduce bacterial burden and associated symptoms.

Past Medical History

- Hypertension
- Atrial Fibrillation
- Bilateral hip replacement
- Sub-arachnoid haemorrhage due to aneurysm
- VV's left leg

Allergies

- Ibuprofen
- Tramadol

Previous treatments

- Multiple courses of broad spectrum antibiotics
- Topical antiseptic silver Hydro fibre dressing
- Topical honey dressings
- Support bandaging toe to knee

Medication

- Co-dydramol up to 8 daily
- Warfarin
- Finasteride
- Bumetanide
- Bisoprolol
- Ramipril

Assessment

The patient had recurrence of VLU present for six weeks to medial and lateral malleolus right leg. He had been wearing his preventive compression hosiery garments and was on the waiting list for varicose vein (VV) surgery. Holistic assessments deemed that the patient required high compression therapy to aid venous return, to reduce oedema and expedite healing of ulcers prior to VV surgery. However, due to chronic infection, despite several courses of broad spectrum antibiotics, the patient had a high pain score and was unable to tolerate a high compression bandage. The wound below the right medial malleolus measured 12 cm² with 100% slough (see Photo 1) and the wound to the right lateral malleolus was a scab measuring 1.5 cm x 0.75 cm (see Photo 2), caused by a capillary haemorrhage in September 2012. Wounds were malodourous with peri wound inflammation and tenderness. His pain score at assessment was 9/10 despite taking regular Co-Dydramol and due to the site of the wound walking proved troublesome due to his footwear which caused social isolation and depression. A wound swab was taken and found to be positive to Staphylococcus Aureus and sensitive to Flucloxacillin.

Photo 1 - Right medial malleolus 31/10/2012

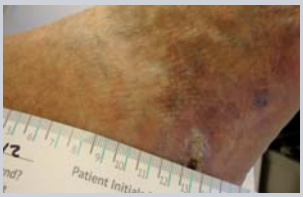

Photo 2 - Right lateral malleolus 31/10/2102

Method/Treatment

Commenced dressings twice weekly

Irrigating then soaking wound with a PHMB and Betaine wound irrigation solution* for 10 minutes

- Applying topical honey dressing to reduce bacterial burden and encourage debridement (EWMA 2013) and multi-layer Hydro fibre to absorb exudate
- Continued support bandaging as before
- Flucloxacillin 500 mgs qds
- Analgesia changed to Co-Codamol 30/500 x 2 qds
- Encourage rest and elevation
- Encourage dorsal foot flexion to aid venous return
- Patient education

Results

Although the local peri wound inflammation cleared following completion of antibiotics, continued topical cleansing with PHMB and Betaine wound irrigation solution* for 10 minutes and application of topical honey, the pain continued to be the key issue for the patient. The pain score remained at 8/10 and he was having increasing intolerance to the analgesia which was causing nausea necessitating the need to reduce the Co-codamol to BD and combine with Paracetemol. The wound bed to medial aspect remained with 100% slough and the scab to lateral aspect had removed leaving a small superficial wound (see Photo 3 and 4). High compression bandaging was still not an option.

On 20th November 2012 the topical primary dressing was changed to an ionic silver alginate** dressing. Within 3 days the erythema had further reduced, the wound bed to medial aspect was 100% granulation and his pain score was 4/10, allowing compression bandaging to be commenced. 7 days later all clinical signs of infection cleared and the ionic silver alginate** dressing could be discontinued (Wounds International 2012b). Treatment continued with polyhexanide (PHMB) and betaine wound irrigation*, to reduce bacterial load and prevent further infection and a simple primary dressing with high compression therapy continued. The dressings were then changed weekly due to reduction in exudate levels. The wounds healed three weeks later (see Photos 5 and 6).

Photo 3 - Right medial malleolus 20/11/2012

Photo 4 - Right lateral malleolus 20/11/2012

Photo 5 - Healed right medial malleolus 24/12/2012

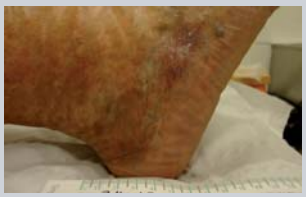

Photo 6 - Healed right lateral malleolus 24 /12/2012

Conclusion

Wound infection causes pain and misery for patients. A combination of antibiotics, polyhexanide (PHMB) and betaine wound irrigation* and application of an ionic silver alginate** dressing dramatically improved the symptoms within 10 days when other treatments including other topical silver and honey anti-microbial dressings had failed. The combination treatment reduced the pain considerably enabling tolerance of a compression bandage and progression of the wounds to healing within 3 weeks.

References

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Wounds International (2012a) International Consensus. Optimizing wellbeing in people living with a wound. An expert working party review. London.

Wounds International (2012b) International Consensus Appropriate use of silver dressings in wounds. An expert working group consensus. London.

* B. Braun Medical Ltd Prontosan® Wound Irrigation Solution

** B. Braun Medical Ltd Askina® Calgitrol® THIN