UrgoClean Ag and the management of a diabetic neuropathic ulcer with osteomyelitis

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INTRODUCTION

Diabetic Foot Ulcers (DFU), due to their underlying pathophysiology, are chronic in nature. These ulcers can be ischaemic or neuropathic in aetiology or a combination of the two. Despite the aetiology, they are at risk of delayed healing. This delayed healing in turn increases the risk of episodes of infection and therefore prolonging time to healing.

Biofilms, which are microbial communities encased within a matrix of an extracellular polymeric substance, can delay healing and are difficult to treat as the substance within which they are encased provides a barrier to standard antimicrobials. Biofilms are also a cause for delayed healing and often prevent the efficacy of an antimicrobial dressing. Any dressing selected therefore must have an antibiofilm action, coupled with an antimicrobial component, for treatment to be effective.

METHOD

A 68-year-old gentleman presented suffering with hypertension, diet controlled type 2 diabetic, with neuropathy and required a 2nd and 3rd right toe amputation after a penetration injury to the right foot. Within a month the patient returned to the advanced podiatrist with his right 1st toe ulcerated. It was confirmed that he had osteomyelitis with septic arthritis. The heavily exuding and malodourous wound was commenced on an antimicrobial dressing regime alongside a 6-week course of antibiotics, as per local policy.

The dressing regime consisted of a number of differing antimicrobials used over 6 weeks. At the end of this period the antimicrobials had been effective in resolving the clinical signs of infection but the wound was now failing to progress, with dull granulation tissue at the wound base and an increased level of exudate persisted. Due to the wound's history of chronic infection, a mature biofilm was suspected. It was then decided to use an antimicrobial with an antibiofilm action, UrgoClean Ag. The intention was that the polyabsorbent fibres coupled with a silver technology lipidocolloid (TLC-Ag) healing matrix, would promote complete cleaning of the wound whilst simultaneously continuing to combat any remaining microbial burden. The polyabsorbent fibres of the dressing would also mechanically disrupt the biofilm and allow the silver ions to effectively kill the microbes.

RESULTS

At day 7, slough was already lifting; at day 14 the wound was no longer static. There were signs of healthy granulation tissue and the wound surface area had started to reduce. The level of exudate further decreased, due to the progression from the inflammatory phase of wound healing, as a result of the effective treatment of the biofilm. This allowed the bulky secondary dressing to be reduced considerably, facilitating an appropriate referral to surgical appliances for bespoke footwear and custom-made insoles.

Day 1. UrgoClean Ag, Initial application

Day 7. UrgoClean Ag continued

Day 14.

DISCUSSION

It is well-known that antimicrobial dressings are effective against wound infection. However, the presence of a mature biofilm necessitates a combined, multi-step treatment regime to be effective. This consists of mechanical debridement and an efficient antimicrobial. An advanced podiatrist often performs initial sharp debridement but efficacy is increased if the biofilm disruption is continued while the dressing is in situ and on removal. It is known that mature biofilms that are disrupted only take 24 hours to reform if an antibiofilm dressing is not selected. Therefore, the dressing selected was an essential component of the treatment strategy in this particular case. The polyabsorbent fibres of UrgoClean Ag were effective at binding onto the wound debris, such as slough and biofilm, facilitating the efficacy of the silver to be maximised.

CONCLUSION

The polyabsorbent fibres of UrgoClean Ag demonstrates the ability to disrupt the biofilm, providing the required gentle mechanical debridement and cleaning to enable the silver to successfully kill any microorganisms that were present. This in turn treated the suspected biofilm successfully and allowed wound healing to progress in this challenging case.

For this team of advanced podiatrists, successful outcomes with new wound care products result in those products being considered for formulary inclusion. Therefore, UrgoClean Ag is now being considered as the first-line treatment in wounds with suspected biofilms, allowing for a simple and clinically effective choice.

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