An Evaluation of a Foam Dressing Impregnated With 0.5% Polyhexamethylene Biguanide (PHMB) Within the Care Pathway of the Diabetic Foot Ulcer

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Introduction

The incidence of diabetes is increasing in the United Kingdom, and consequently so is the incidence of associated foot complications. While neuropathic ulceration has always been the most prevalent type of foot ulcer, there is now an increase in tissue damage where neuroischaemic is a contributory factor[1] . In a recent publication, the challenge of providing Podiatry Services within Primary Care to detect early complications and effectively manage these wounds was described[2] . The article considered the need for adequately trained staff and access to a multi-disciplinary foot team as essential to manage these patients effectively.

Within Portsmouth Primary Care Trust the aim of the Podiatry Service is to provide accessible high quality care for this group of patients. Staff have access to a range of advanced techniques to support wound healing such as Versajet™ (Smith & Nephew), and Negative Pressure Wound Therapy (NPWT) , and are encouraged to consider the appropriate use of topical antibacterial dressings where there is a clinical need

Case Study 1

A 56 year old, Type 2 diabetic female underwent an amputation of her left hallux following infection sustained in a neuropathic ulcer and she presented to clinic. She underwent synergistic Versajet and NPWT using the Venturu™ (TallyGroup Limited. Following 10 days of NPWT, this was removed and the wound was dressed with Kendall™ AMD antimicrobial foam. The wound responded well to this treatment, with the dressing providing high levels of comfort and patient satisfaction at the outcome of this progression. At six weeks of treatment the wound was observed to be healed. Fig 1- 4)

Figure 1: Wound on presentation June 2008

Figure 2: Wound following debridement

Figure 3: NPWT in situ

Figure 4: Wound at the end of evaluation

Case Study 2

A 62 year old female with Type 2 diabetes and neuropathy of the feet, developed a lateral ulceration, (Texas grade BII3), over her left 5th metatarsal head. The ulcer was debridement and the wound bed prepared in the community podiatry clinic using Versajet. The ulcer was then dressed with Kendall AMD antimicrobial foam and following 5 weeks of treatment progressed to healing (Fig 5-7). This facilitated an earlier return to work for this patient and prevented further complications.

Figure 5: Wound at presentation

Figure 6: Wound following debridement

Figure 7: Wound at the end of evaluation period

Case Study 3

A 76 year old female with Type 2 diabetes and foot neuropathy presented at the podiatry clinic after surgery where 2-4th toes of her right foot were amputated. After assessment of the wound it was debrided using Versajet . At this point the wound could be probed to bone and therefore surgical intervention was considered to be an option. However, Kendall AMD antimicrobial foam was applied to the wound which was then closely observed for signs of further deterioration. The wound resolved in 6 weeks with further surgery for the patient being avoided. The patient was highly delighted that she did not have to be re-admitted for further surgical interventions. (Fig 8-9)

Figure 8: Wound prior to commencing treatment

Figure 9: Wound after 6 weeks treatment with Kendall™ AMD antimicrobial foam

Case Study 4

A 63 year old male with Type 2 diabetes with neuropathy as a complication. On assessment the wound was observed to be necrotic and showed signs of significant infection (Fig. 10-11). Hydrosurgical debridement was performed revealing the extent of the wound after which Kendall AMD antimicrobial foam was applied as a bacterial barrier in conjunction with systemic antibiotics commenced. To date the wound is progressing well, with the patient reporting a reduction in exudate and odour from the wound.

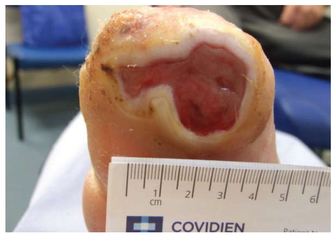

Figure 10

Figure 11

Case Study 5

A 52 year old, Type 2 diabetic male presented with a neururopathic ulcer under his right hallux. The management plan was to offload the affected area to prevent further pressure damage and to apply Kendall AMD antimicrobial foam as the dressing of choice to the wound to provide a bacterial barrier and absorb exudate. This proved to be successful as the the wound progressed to full healing in 5 weeks without infection developing, and the patient not requiring systemic antibiotic therapy. Patient satisfaction was high with this care as he had previous experience of an ulcer in the same location which took longer to heal.

Figure 12

Figure 13

Discussion

The management of foot ulcers in the diabetic is complex and challenging. It is essential that Podiatry Services have access to a range of treatment options, and have the clinicians with the skills and knowledge to implement them.

The use of effective, topical antimicrobial agents is an essential treatment option which should be considered in this group of patients who are at high risk of infection. As such they need a bacterial barrier in contact with the wound surface. While PHMB is not a new antibacterial agent, its use in wound care is relatively new. It emerged as the antibacterial agent within the gauze filler of the NPWT systems where the Chariker-Jeter technique4 is used. However the more recent presentation within a foam dressing (Kendall AMD antimicrobial foam) is a positive development, where an absorptive dressing and one which may cushion the wound is required.

Conclusion

Although the evaluation was limited in that it was a undertaken as case series on a small cohort of patients, the results to date are positive. This indicates to the Podiatry Service that it merits further studies to demonstrate its efficacy as part of the programme of treatment for diabetic patients with foot ulcers.

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