

Use of ActiFormCool® in the treatment of painful, dehisced lower limb amputation wounds.

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Fig 1: Mrs A: Devitalised tissue across the whole wound bed with some peri wound erythema. Pain scores 8-9.



Fig 2: Mr B: Small areas of devitalised tissue to wound bed. Peri wound skin healthy. Pain score 9.



Fig 3: Mrs A: Week 1 post application of ActiFormCool®. Wound appears larger following autolytic removal of devitalised tissue. Wound bed largely granulation tissue with healthy peri wound skin. Pain scores 4-5.



Fig 4: Mrs A: Week 4 Significant reduction in wound size. Wound bed 100% granulation tissue. Occasional pain scores 2-3.



Fig 5: Mrs A: Week 8. Wound healing achieved.

Abstract

Early mobilisation on unhealed stump wounds is innovative in amputee rehabilitation (Van Ross et al 2009). One fundamental factor which must be considered and dealt with appropriately is pain management. Two case studies are described, both with mixed aetiologies and multiple comorbidities. In both cases there was a reduction in pain and improvement in the removal of devitalised tissue. ActiFormCool® allowed for early mobilisation leading to increased independence and improved quality of life.

Introduction

The majority (72%) of lower limb amputations occur as a result of peripheral arterial disease (NASDAB 2007). Wound complications are mainly due to oedema, tissue necrosis and infection following surgery. This is exacerbated by multiple co-morbidities associated with diabetes, anaemia and renal failure (Harker 2006). Healing can also be delayed in the elderly population due to skin friability or reduced tissue oxygenation from smoking (Holt et al 1992; Lind 1991).

Surgical wounds are often painful by definition (EWMA 2002). The introduction of early mobilisation in amputee rehabilitation means that the patient is required to ambulate on the newly composed stump and tolerate stump shrinkers in the weeks following surgery. It is essential that pain is managed effectively in order to allow for full ambulation.

Method

Mrs A is a 67 year old lady who had a left trans-tibial amputation due to an ischaemic foot lesion following an unsuccessful angioplasty and femoral popliteal bypass graft. She is a heavy smoker and has previously had a right trans-tibial amputation. Prior to hospital admission she was independently mobile using a prosthesis.

The stump was extremely oedematous post operatively and the wound gradually dehisced across the whole suture line. Clinically there was 100% slough to the wound bed with eschar to the posterior flap and moderate levels of exudate (Fig 1). Pain scores of 8 to 9 on the Numeric Rating Scale were managed with opiate medication. The pain levels meant that she was unable to participate in prosthetic rehabilitation and she was also unable to tolerate a hydro active honey dressing or sharp debridement.

Mr B is a 61 year old man with chronic renal failure who had a right trans-tibial amputation following a great toe (hallux) amputation which failed to heal. Following removal of sutures his wound dehisced to the medial aspect of the suture line. There was minimal oedema with low levels of exudate. The wound bed had some areas of devitalised tissue (approximately 10%) seen clinically but there were large areas of granulation tissue (approximately 90%) and no clinical signs of infection (Fig 2). However he reported pain scores of 9, was prescribed high doses of opiate analgesia and was unable to tolerate physiotherapy.

Results

Mrs A: ActiFormCool® (an ionic sheet hydrogel) was applied in an attempt to reduce pain levels and promote autolytic debridement, to prevent her returning to the operating room for revision surgery.

One week later the wound had improved significantly, presenting as largely granulation tissue (fig 3). Pain scores had decreased to between 4 and 5, enabling her to commence a programme of rehabilitation. 3 weeks later the wound continued to improve (Fig 4) and she was discharged home to continue prosthetic rehabilitation as an outpatient. Pain scores were 2 to 3 occasionally at night and all opiate medication had been discontinued.

Mr B: ActiFormCool® was applied to see whether it would help to reduce pain levels. It was secured in place with a soft silicone dressing. Within a week, reported pain scores had decreased to around 4, the devitalised tissue had been removed and he was able to participate in rehabilitation. Four weeks later he was measured for a primary prosthesis and all opiate analgesia ceased.

Discussion

In both cases application of ActiFormCool® assisted in autolytic debridement by reducing the amount of slough to the wound bed.

In Mrs A's case a considerable clinical improvement to the wound prevented her from returning to theatre for revision surgery. Pain scores reduced significantly in both patients, which allowed them to reduce the amounts of opiate analgesia they were prescribed. It also facilitated them being able to commence a programme of rehabilitation, which led to both patients being measured for and fitted with a primary prosthesis. Full wound healing was achieved in both cases (Fig 5).

Conclusion

ActiFormCool® assisted not only in improving the wound but also appeared to reduce pain levels, allowing them to continue with rehabilitation. Early mobilisation leads to increased independence and improved quality of life.

References

- European Wound Management Association (2002) Position Document. Pain at Wound Dressing Changes. London: MEP Ltd. Available at URL <http://www.ewma.org>.
- Harker J (2006) Wound healing complications associated with lower limb amputation. Available at URL: <http://www.worldwidewounds.com>
- Holt DR, Kirk SJ, Regan MC, Hurson M, Lindblad WJ, Barbul A (1992) Effect of age on wound healing in healthy human beings. *Surgery* 112(2): 293-297
- Lind J, Kramhoft M, Bodtger S (1991). The influence of smoking on complications after primary amputations of the lower extremity. *Clinical Orthopaedics and Related Research* 267: 211-217.
- National Amputee Statistical Database (NASDAB). National Amputee Statistical Database Annual Report 2005/2006. Edinburgh: NASDAB 2007 Available from URL: <http://www.nasdab.co.uk>.
- Van Ross ERE, Johnson SR, Abbott CA (2009) Effects of early mobilisation on unhealed, dysvascular trans-tibial amputation stumps: A clinical trial. *Arch Phys Med Rehab* 90(4): 610-617