Involving the patient to achieve positive outcomes in the management of non-healing wounds

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Introduction

Lower limb wounds occur as a result of various aetiologies. Mixed aetiology ulcers result from a combination of venous disease and arterial disease. As the population ages, the prevalence of mixed aetiology leg ulceration is likely to increase, as a clear association between the prevalence of peripheral arterial disease and increased age has been established.[1]

This case study describes the wound management of Jack (pseudonym), a 67-year-old gentleman with a mixed aetiology wound to his leg and a neuroischaemic ulcer to the dorsum of his foot that had both been present for over 5 years. Jack had an extensive medical history of double heart bypass surgery, CVA and type 2 diabetes which was controlled with both insulin and tablets. Jack lived alone and had very limited mobility, using a mobility scooter to get around.

Method

Jack was referred to the practice nurse by his GP for assessment and management of a non- healing wound to the pre-tibial area of his left leg. He was already under the care of the specialist podiatrist for management of his diabetic foot ulcer.

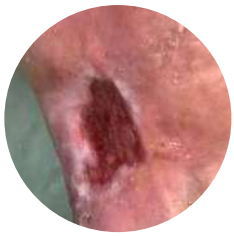
On presentation, his leg wound measured 2.5cm length and 3.5cm width, with 80% granulation tissue and 20% slough and minimal exudate. Jack reported a pain score of 5/10 and was taking gabapentin regularly.

The aims of wound management were to reduce oedema and heal both the wound to his leg and to the dorsum of foot. Compression therapy was contraindicated due to risks to his neuroischaemic diabetic foot wound.

As Jack's wounds were showing no signs of healing, it was decided that a Neuromuscular Electrostimulation (NMES) device should be added as an adjunctive therapy to the existing wound management regimen to aid healing by augmenting blood flow to his limb and wound beds.

Leg wound at start of NMES treatment (Day 0)

Leg wound after 12 weeks of NMES treatment



Foot wound after 1 week of NMES treatment

Foot wound at 12 weeks of NMES treatment

*Neuromuscular Electrostimulation Device (NMES) - geko™ wound therapy.

The NMES device is a small, self-adhesive, wearable device that is applied to the surface of the skin on the lateral aspect of the leg just below the knee, over the head of the fibula. It delivers a charge-balanced electrical pulse once per second to the common peroneal nerve which passes through this site, eliciting muscle contractions in the leg and foot, so activating the venous muscle pumps of the leg and foot, and thus increasing venous, arterial, and microvascular flow.[2,3]

Jack was taught how to apply and remove the NMES device. The device was positioned to the skin over the common peroneal nerve at the head of fibula on his affected leg. A regular twitch of the foot indicated that the muscles were being stimulated. This optimum positioning of the device was marked so that he could change the device at home on a daily basis. The usage was 12 hours on and 12 hours off each day for seven days a week.

Results/Discussion

Jack was very keen to have the NMES device added to his wound management regimen. It gave him hope that his wounds might eventually be healing after being present for so long. Jack found the application and removal of the NMES device extremely easy.

Both his leg and foot wound started to reduce in size after commencing use of the NMES device. Jack reported a reduction in his pain and was able to reduce his use of analgesics. Over 12 weeks both of his wounds had reduced in size by approximately 50%. Jack reported that his mood had lifted due to the improvements in his wounds and the reduction in his pain. He also stated that he enjoyed being able to take part in his own care as it made him feel involved and slightly more independent.

Healthcare professionals are working to embrace new methods of care that can give patients more involvement in their treatment. For wound care, this means giving able patients more of an active role. Empowering patients in this way can increase adherence and concordance rates and ultimately give them greater hope throughout their treatment – a crucial point for those who are deeply impacted by their wounds. This case serves as an illustration of the advantages associated with actively involving patients in their own care.

Conclusion

Having both a mixed aetiology leg ulcer as well as a neuroischaemic diabetic foot ulcer presented a challenge in deciding on the best wound management regimen for this patient. By adding the NMES device to standard care, Jack's wounds made significant progress after 5 years of non-healing. His quality of life improved and he felt involved in his wound care for the first time.

As demonstrated in this case study, the NMES device may provide an effective adjunctive treatment option for hard-to-heal lower limb wounds.

1. Selvin, E. and Erlinger, T.P., 2004. Prevalence of and risk factors for peripheral arterial disease in the United States: results from the National Health and Nutrition Examination Survey, 1999–2000. Circulation, 110(6), pp.738-743.

2. Das SK, Dhoonmoon L, Chhabra S. Neuromuscular stimulation of the common peroneal nerve increases arterial and venous velocity in patients with venous leg ulcers. Int Wound J. 2021; 18(2): 187-193.

3. Bosanquet DC, Ivins N, Jones N, Harding KG. Microcirculatory flux and Pulsatility in arterial leg ulcers is increased by intermittent neuromuscular electrostimulation of the common peroneal nerve Ann Vasc Surg. 2021; 71: 308-314.

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