Poster Presentation: VENTURI® MiNO NPWT System

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Use of a New Portable Lightweight Negative Pressure Wound Therapy System in a Complex Diabetic Foot Ulcer

Dr Paul Chadwick, Consultant Podiatrist. Kerry Richards, Advanced Podiatrist. Samantha Haycocks, Advanced Podiatrist.
Salford Royal Hospital NHS Foundation Trust

Introduction and Treatment Aim

Negative Pressure Wound Therapy (NPWT) is indicated for the treatment of many different wound types, including diabetic foot ulcers. Treating diabetic foot ulcers is often difficult due to their complex nature which can result in poor healing responses and increased risk of complications.

As a result of a compromised blood supply to the foot and the associated poor tissue perfusion, diabetic patients with foot ulcers will often experience a slow healing process, or a complete lack of healing, placing them at risk of infection. [1]

For the purpose of this evaluation a new, small, lightweight NPWT system was utilised (the VENTURI® MiNO, see Figure 1). The pump weighs 250g, it has a 150ml canister and is carried in a discreet carry bag.

The small size and portable nature of the MiNO NPWT system allowed the delivery of continuous NPWT to the wound whilst enabling the patient to remain fully mobile and independent throughout their treatment.

The primary aim of this work was to promote healing, encourage the formation of granulation tissue and stimulate the proliferative phase of healing. Wound size, tissue type, exudate levels, wound odour and peri-wound skin were assessed.

In addition to the clinical outcomes, clinicians views on ease of use and dressing application was captured. From the patient perspective, portability and user acceptance of the mini NPWT system was recorded.

Methods

The podiatry department at Salford Royal Hospital completed a two week evaluation using the new mini, portable NPWT unit. The patient was chosen to have NPWT as part of the structured, dynamic care pathway published by Chadwick et al in 2009. [2]

NPWT was applied to a chronic diabetic foot ulcer following Hydro-surgical debridement of the wound bed. The therapy would continue until healthy granulation was present over the entire wound bed, or there was a reduction in wound area and exudate levels. Following removal of the NPWT, a nanocrystalline silver barrier dressing was applied as dictated by the care pathway.

The patient was a 41 year old female, with a history of Type 1 diabetes, neuropathy and renal transplant in 2011.

The wound was situated to the lateral aspect of the calcaneum (left foot) and had been present for three months. Wound dimensions were 2.8cm length x 1.2cm width x 1cm depth (area = 3.36cm^2; volume = 3.36cm^3). There was 20% slough and 80% granulation tissue to the wound bed.

FIGURE 1.
VENTURI® MiNO Negative Pressure Wound Therapy system

Gauze was used as a wound filler and then bridged away to the top of the foot. Continuous therapy, at -80mmHg was used throughout the evaluation.

The dressing was re-applied every three days, with the exception of one occasion when the dressing remained in place for five days, as the patient was unable to attend her scheduled appointment.

The patient was fully mobile and independent and had a young family, so it was essential to maintain this independence during treatment.

Results

After two weeks, the wound was 2cm long, 1cm wide and 0.3cm deep (area = 2.0cm^2; volume = 0.6cm^3) with granulation tissue covering 90% of the wound bed and the remaining 10% being slough. Exudate level was moderate during treatment and the wound remained infection free. The patient developed some irritation to the peri-wound skin. This was exacerbated when the dressing remained in place for five days. Figure 2 illustrates the wound healing during the two weeks of NPWT treatment.

In addition to the positive clinical results, clinicians found the new system easy to use, identifying the ease of dressing application and removal. The patient found the new small portable NPWT unit easy to manage and continued with day to day life with no restrictions by having the system in place.

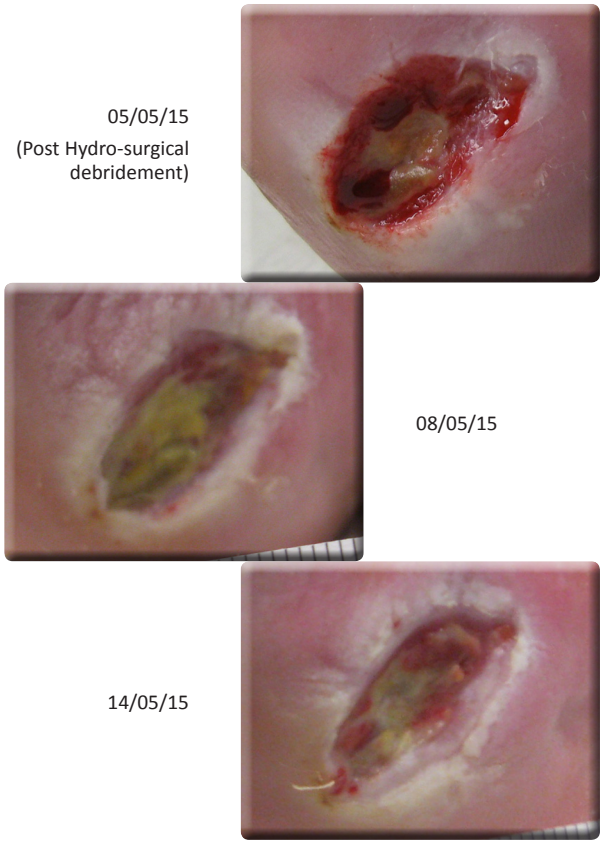

FIGURE 2.
Before, during and after treatment with the MiNO NPWT system

Discussion / Conclusion

The VENTURI® MiNO NPWT system has demonstrated effective clinical results, as part of a dynamic care pathway, and has contributed to the healing of this chronic diabetic foot ulcer, which in turn reduces the risk of infection and other complications that are so often experienced by diabetic foot ulcer patients.

In addition to the positive clinical results, the patient remained fully mobile and independent throughout their treatment. The pump was discreet and extremely portable with minimal interruption to her life.

This evaluation has identified not only the clinical benefits of this new mini portable NPWT, but the benefits to those patients who are independent. Maintaining this independence is vital to ensure life can continue as normal as possible for both the patient and their family.

References

1. Falanga, V. Wound healing and its impairment in the diabetic foot. Lancet. 2005 Nov 12;366(9498):1736-43.
2. Chadwick P, Haycocks S, Bielby A, Milne J. A dynamic care pathway to coordinate the use of advanced therapy in diabetic foot ulceration. J Wound Care 2009 Oct;18(10):433-7.

Talley Group Limited
Premier Way, Abbey Park Industrial Estate
Romsey, Hampshire, SO51 9DQ England
TEL: +44(0)1794 503500
FAX: +44(0)1794 503555
EMAIL: sales@talleygroup.com
www.talleygroup.com