A clinical case study using the VENTURI™ Negative Pressure Wound Therapy system to treat a patient in the community

Carolyn Wheatley, Tissue Viability Nurse, Leicestershire County and Rutland PCT
Yvonne Aldous, Staff Nurse, Leicestershire County and Rutland PCT

Introduction

Topical Negative Pressure has been a useful tool in healing complex wounds within the Leicestershire County and Rutland PCT since the mid 1990s when a Classic V.A.C.® (KCI®) was purchased. The unit was in constant demand and a waiting-list was held until late 2006 when the consumables became obsolete, leaving no community access to Negative Pressure Wound Therapy (NPWT).

High overspends in early 2007 found LCRPCT introducing 'spend to save' measures to avoid excess hospital bed days and reduce non-essential emergency admissions. Funding to hire NPWT was made available as an effective way of satisfying both criteria and over the course of one year seventy-seven patients have been successfully discharged home on NPWT.

Around the same time alternative less costly NPWT systems became available. A direct referral pathway was devised and a protocol for allocation of NPWT therapy. Historically, seeking funding for discharges using NPWT could take several weeks and most were declined with patients remaining in hospital for several weeks or months. The first patient on the direct referral path went home within 3 hours on NPWT.

LCRPCT are keen to try the alternative systems so that as many patients as possible can benefit from NPWT. To date three systems have been evaluated.

Challenges Encountered

The local hospitals provide 3 days hire/consumables post discharge. Most early referrals to the community found consultants insisting upon V.A.C.® continuation. After many years of a monopoly in the TNP market, and with secondary care in Leicester using KCI® V.A.C.® exclusively, introduction of a new method of negative pressure therapy was difficult.

With little evidence to support the new systems, a considerable resolve and confidence in the new systems was needed by the community TVN in an attempt to improve access and provision of NPWT to community patients. Many consultants were sceptical and this was often transferred as apprehension to patients, most of who were pleasantly surprised when they experienced the new system. LCRPCT now undertake a specialist assessment within the first 3 days and appropriate wounds are transferred to the new systems.

The patient featured in this case study was discharged from the hospital on a V.A.C.® Freedom® and later transferred to the VENTURI™ NPWT system from Talley Medical.

Benefits to an early discharge include:-

- Reduced risk of serious infection
- Family support
- Improved dietary intake
- Reduced stress and anxiety in familiar surroundings
- Improved sleep and rest

Assessment of the Patient

The patient is a 61 year old male living at home with his wife and is currently on sick leave from work. The midline abdominal Laparotomy had dehisced following a Salvage Cystectomy with formation of Ileal conduit for Cancer of the Bladder. He had up to this episode enjoyed good health.

Assessment of the Wound

- Exudate was very high and 'milky'
- Odour was apparent upon removal of the dressing
- Slough was thick and dry and filled the cavity
- Deep tension sutures were clearly visible
- There was no wound pain
- Surrounding skin was slightly dry
- Wound measured 12cm x 3.5cm x 5cm deep (Fig. 1)

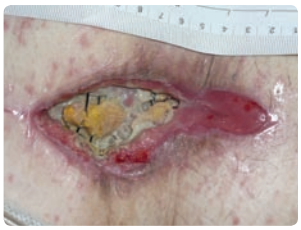

Fig. 1

Method

The VENTURI™ was applied to replace the V.A.C.® which had been in place for 22 days (Fig. 2). The presence of slough and suture material increased infection risk and due to the moderate odour it was considered critically colonised. The wound was lined with Urgotul® SSD (Urgo).

Lining the wound with a non-adherent contact layer is not necessary with the VENTURI™ as the damp gauze does not adhere or allow capillary loop penetration but was used, on this occasion, to reduce topical bacterial burden.

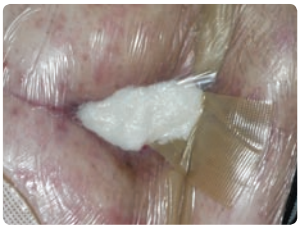

Fig. 2

Dressing changes were twice weekly.

Results

Wound slough started to debride within 2 days (Fig. 3). The community nurses were experienced with the VENTURI™ system and it was agreed that the use of the dampened gauze may be more effective at de-sloughing the cavity and this proved to be the case.

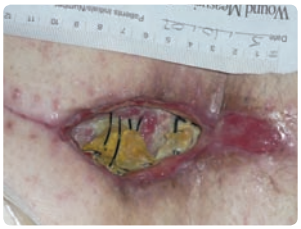

Fig. 3

At an Outpatients appointment one month after treatment began with the VENTURI™, most of the sutures were removed and the consultant was happy with progress and advised continuation (Fig. 4). (VENTURI™ units have to be removed before attending for Outpatients appointments as the hospital staff cannot operate the pump or replace the dressing, the District Nurse then replaces it on return home).

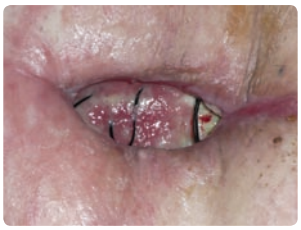

Fig. 4

A telephone call to the TVN reported problems with the surrounding skin found epidermal stripping from poor film drape removal techniques of some staff. On day 41 of the treatment with the VENTURI™ the wound, now without suture material, full of healthy granulation tissue and with minimal exudate was assessed as appropriate to be managed with conventional products (Fig. 5). The excoriated surrounding skin was treated with Cavilon™ barrier film (3M) and the wound went on the heal.

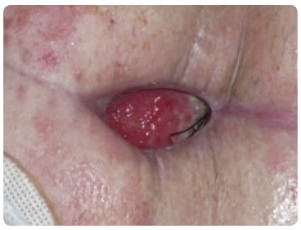

Fig. 5

Discussion

The patient was happy with the VENTURI™ unit, its portability and the 12 hour battery life. The fact that it runs silently was a bonus for undisturbed sleep and rest for patient and wife. The 600ml canister capacity required change only once weekly. A problem occurred one weekend and the company attended within hours to rectify the fault.

It is not the aim within LCRPCT to heal wounds using NPWT but to get the wound stable and exudate manageable for continuation with conventional products requiring a similar level of dressing change input.

At the early presentation of the 'new' NPWT systems, use of damp gauze filled the TVN with intrepidation as many years had been spent training staff not to use dry gauze as a primary dressing. However once the de-linted Kerlix™ AMD™ gauze (Covidien) is dampened it has the advantage that it does not dry-out, stick or traumatise the wound-bed and for the featured patient, it proved invaluable in hydrating the thick hardened slough.

Twice-weekly nurse visits makes the VENTURI™ highly cost-effective for community patients where high-exudate can necessitate dressing changes of once or twice daily. Patients are spared wet clothing / bedding, embarrassment and social isolation caused from odour and the vicious circle of antibiotic therapy and further tissue break-down so often encountered with these complex, difficult to manage chronic wounds.

Conclusion

This study has featured one of the 24 LCRPCT patients in a 12 month period who shared 302 therapy days using Talley VENTURI™ NPWT. The annual VENTURI™ hire costs total £4,435. Continuation on V.A.C.® hired units would have cost £13,839, excluding consumable costs of more than double.

Staff receive Talley supported training and for some, the ease of application of the V.A.C.® TRAC® technology has found a minority resistant to change, but for the majority, obtaining a seal is no different to using the old Classic V.A.C.® and the majority of feed-back is positive from both staff and patients. There is no doubt that the cost of the VENTURI™ allows more community wounds to be treated effectively, avoiding the many complications encountered in non-NPWT treated complex wounds. As well as avoiding incalculable excess bed days with prompt patient discharges, seven emergency admissions have been deferred using the VENTURI™.

COST OF TNP TREATMENT USING THE KCI® V.A.C.® AND TALLEY MEDICAL VENTURI™			
V.A.C.® - 22 days	£1008.15	VENTURI™ - 39 days	£572.81
V.A.C.® dressings x 2 weekly	£144.00	VENTURI™ dressings x 2 weekly (3 included in intro. pack)	£120.00
Canisters (300ml) x 2 weekly	£156.00	Canisters (600ml) x 1 weekly (1 included in intro. pack)	£62.50
Postage and delivery	nil	Postage and delivery	£47.50
V.A.C.® TOTAL 22 days:	**£1308.15**	**VENTURI™ TOTAL 39 days:**	**£802.81**

Talley Medical would like to thank Carolyn Wheatley and Yvonne Aldous for undertaking this study, together with the patient and his family for allowing us to publish the study.

TALLEY GROUP

TALLEY GROUP LIMITED
Premier Way, Abbey Park Industrial Estate,
Romsey, Hampshire SO51 9DQ England
Tel: (0)1794 503500 Fax: (0)1794 503555 e-mail: sales@talleygroup.com
www.talleygroup.com

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