A CASE SERIES FEATURING A NEW PORTABLE NPWT DEVICE WELL SUITED FOR HOME HEALTHCARE

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Introduction

Patients with complicated wounds often undergo a long period of wound treatment. Mobile patients with complicated wounds would benefit from a wound therapy conducive to the home. Utilizing an ultra-portable personal Negative Pressure Wound Therapy (NPWT) device** easily initiated in any care setting would greatly benefit mobile patients. We proceeded to question if a new portable NPWT device** could safely and efficiently be applied to treat complicated wounds in the home healthcare setting.

Methods

The device was recently shown to be successful in supporting wound healing in a case series from Europe [1]. Together with a polyurethane* or gauze wound dressing, the ultra-portable NPWT device** was given to the patients for home use where a wound care specialist changed the dressing three times per week. None of the patients presented with contraindications such as:

- Malignancy of the wound
- Non-enteric and unexplored fistula
- Exposed vasculature
- Exposed anastomotic site of blood vessels or bypasses
- Untreated osteomyelitis
- Necrotic tissue with eschar present
- Exposed nerves
- Exposed organs

Results

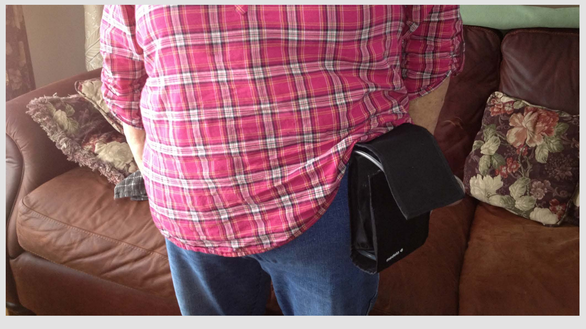
This case series demonstrates that a new ultra-portable NPWT device** enables wounds to progress to healthier conditions rapidly. Moreover, the new ultra-portable NPWT device** helped facilitate wound healing as it allowed patients to be fully mobile and continue with normal daily activities during the course of treatment.

Case Description: Patient 1

62 year old fully mobile female patient was admitted for wound treatment at the Sparrow Wound Clinic on the 21st of January 2013. The patient presented with a non-infected post surgical wound dehiscence in the chest area which was treated with NPWT for 11 days. Comorbidities include heart valve replacement surgery 1 month prior to admission and development of a post surgical incision dehisced wound. The NPWT device** was used in the home environment and dressed by a wound specialist in home. NPWT was indicated for granulation tissue formation and removal of exudate and infectious material.
Upon patient admission, the wound measured 3.3 cm in length, 2 cm in width and 0.6 cm in depth, with light exudate. Wound debridement was necessary. The wound status after 11 days of NPWT was observed to be improved, and it is noted that the wound reduced in size to 1.8 cm in length, 1.8 cm in width and 0.3 cm in depth. The clinician further stated that the wound status improved after the NPWT therapy and was able to be managed with an alternative moist wound dressing on 1st of February 2013. During the 11 day treatment period, the NPWT device setting was –100 mmHg, a foam-based* NPWT dressing was changed 5 times and the device canister was changed 3 times.

Picture 1: Patient wound on 01.23.13

Picture 2: Patient comfortably carrying the ultra-portable NPWT device together with the carrying case.



Case Description: Patient 2

25 year old fully mobile male patient was admitted for wound treatment at the Frankfort Regional Medical Center-Wound Care Clinic on the 28th of January 2013. The patient presented with a non-infected hernia repair dehisced surgical wound which was treated with NPWT for 14 days (previous treatment with Aquacel and gauze dressings). Comorbidities include a history of smoking. The NPWT device** was used in the home environment and dressed by a wound specialist at the wound clinic. NPWT was indicated for granulation tissue formation and removal of exudate and infectious material.
Upon patient admission, the wound measured 0.8 cm in length, 3.8 cm in width and 1.0 cm in depth, with moderate exudate. Tunnel 1.2 cm and 0.9 cm. Wound debridement was necessary. The wound status after 14 days of NPWT was observed to be greatly improved, with the wound reduced in size to 0.5 cm in length, 0.8 cm in width and 0.5 cm in depth, and no exudate. The patient's wound completely healed after 2 weeks of NPWT**. During the 14 day treatment period, the NPWT device setting was –80 mmHg, a gauze-based** NPWT dressing, without a contact layer, was changed 4 times and the device canister was changed 4 times.

Picture 3: 01.28.13 before the 1st NPWT application

Picture 4: 02.04.13, good wound healing progression after gauze-based NPWT with an ultra-portable device**

Case Description: Patient 3

59 year old fully mobile female patient was admitted for wound treatment at the Russell County-Wound Care Clinic on the 30th of January 2013. The patient developed a diabetic foot ulcer at the 5th metatarsal in December of 2012 with gangrene and osteomyelitis. The patient underwent surgery for amputation of the 5th digit on the 9th of January 2013. Antibiotics and NPWT were initiated post operatively. The NPWT device** was used in the home environment and dressed by a wound specialist at the wound clinic for 26 days. NPWT was indicated for granulation tissue formation, promotion of tissue perfusion and removal of exudate and infectious material.
Upon patient admission, the wound measured 4.8 cm in length, 3.6 cm in width, with moderate exudate (a non-adherant wound contact layer *** was used to cover exposed bone), and 10% granulated tissue, 74% slough and 15% eschar. Wound depth was not measured due to the presence of necrotic tissue. Wound debridement was necessary. The wound status after 26 days of NPWT was observed to be improved, even though the wound size remained the same measuring 4.8 cm in length, 3.2 cm in width and the depth was hard to determine, the granulation tissue greatly increased to 40%. During the 26 day treatment period, the NPWT device setting was –125 to –150 mmHg, a gauze-based** NPWT dressing with wound contact layer was changed 12 times and the device canister was changed 10 times.

Picture 5: 02.02.13, early stages of foam-based* NPWT with an ultra-portable device**

Picture 6: 02.25.13, end stages of foam-based* NPWT with an ultra-portable device**, wound is seen to be greatly improved compared to initial wound pictures

Case Description: Patient 4

43 year old fully mobile male patient was admitted for wound treatment at the Frankfort Wound Care Clinic on the 8th of February 2013. The patient presented with an infected surgical wound, resulting from a motor vehicle accident with a fracture with external fixation. An abscess developed at the site and was excised and drained on the 6th of February 2013. Antibiotic treatment was given. Prior to the application of the new ultra-portable NPWT device**, the patient was treated with another NPWT system (utilizing a well known black PU foam). The new ultra-portable NPWT device** was used in the home environment and dressed by a wound specialist at the wound clinic for a period of 24 days. NPWT was indicated for granulation tissue formation and removal of exudate and infectious material.
Upon patient admission, the wound measured 8.5 cm in length, 2.4 cm in width and 1.7 cm in depth, with light exudate. Wound debridement was necessary. The wound status after 24 days of NPWT was observed to be improved, and it is noted that the wound reduced in size to 6.7 cm in length, 1.7 cm in width and 0.3 cm in depth. During the 24 day treatment period, the NPWT device setting was -80 mmHg, a gauze-based** NPWT dressing with wound contact layer was changed 13 times and the device canister was changed 7 times.

Picture 7: 02.08.13, before NPWT application

Picture 8: 02.08.13, patient with an ultra-portable gauze-based NPWT**

Conclusions

This case series demonstrates that a new ultra-portable device** can be used effectively on the majority of wounds for which NPWT is indicated and in all care settings. In addition, a new device that promotes freedom and mobility helps patients resume normal daily activities which in turn improves patient care. Patients found the system to be light, portable, easy to use and comfortable. They were very satisfied with the outcomes of this new solution.

Literature
1. P. Koppes, S. Harlacher, M. Bowe, R. Paglinawan, C. Marquardt: Complex Wounds: A New Portable NPWT Pump Efficiently Supports Wound Healing. Symposium of Advanced Wound Care & Wound Healing Society (SAWC/WHS) 26th Annual Symposium, Denver, Colorado, USA, May 1–5, 2013.

Notes:
Product notation:
* Avance® NPWT System (Mölnlycke Health Care AB, Gothenburg, Sweden)
** Invia® Motion™ NPWT System (Medela AG, Baar, Switzerland)
*** Mepitel® (Mölnlycke Health Care AB, Gothenburg, Sweden)

Patient de-identification is implemented in all photographs.

Acknowledgements: The support of Medela AG (Laettichstrasse 4b, 6341 Baar, Switzerland) for this project is gratefully acknowledged.

Presented at the 27th Annual Symposium on Advanced Wound Care and Wound Healing Society (SAWC/WHS), Spring, April 23–27, 2014, Orlando, FL, USA

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