Early Experience with the Use of Negative Pressure Wound Therapy with Instillation and a Novel Reticulated Open Cell Foam Dressing with Through Holes

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INTRODUCTION

Negative pressure wound therapy (NPWT) is an advanced wound care therapy commonly used in chronic and complex wounds. Historically, standard NPWT has been associated with higher-cost advanced wound care therapies; however, several studies have shown an overall savings in direct and indirect costs, in a large part due to decreases in operating room (OR) visits, early wound closure in many treated patients, reduced hospital stay, less required dressing changes (with resultant lower material/manpower cost and care delivery efficiency), as well as improved limb preservation rates.[1-7] Over the years, NPWT has evolved to include the ability to instill topical wound solutions, which are allowed to dwell directly onto the open wound.[8-10] A growing body of literature supports the use of NPWT with instillation and dwell time (NPWTi-d; V.A.C. VERAFLO™ Therapy) with positive clinical outcomes and potential cost savings being reported.[11-15]

Recommendations exist in the literature for the use of NPWTi-d in acute and chronic wounds.[8-10] Several dressings for use with NPWTi-d have been developed, among them a reticulated open cell foam dressing with through holes (ROCF-CC; V.A.C. VERAFLO CLEANSE CHOICE™ Dressing) that assists in removing thick wound exudate and infectious materials.[16] ROCF-CC is useful for wound cleansing when debridement is not possible or appropriate, particularly in high operative risk patients. Here, we report our early experience on the use of NPWTi-d with ROCF-CC in the following cases of complex wounds.

CASE STUDIES

Case 1

A 72-year-old male, with a history of essential hypertension, cerebrovascular accident, and moderate to severe malnutrition, presented with an unstageable sacral pressure injury. The wound at presentation measured 15.0 cm x 11.0 cm with >60% adherent nonviable tissue on the wound surface (Figure 1A). After 24 hours of ROCF-CC; V.A.C. VERAFLO CLEANSE CHOICE™ Dressing NPWTi-d (70cc hypochlorous solution with a 10-minute dwell time, followed by 3 hours of NPWT at -125 mmHg), the wound surface filled with >90% viable tissue (Figure 1B). After noting the results, the patient was transitioned to standard NPWT and discharged to a long-term acute care (LTAC) hospital.

Case 2

A 59-year-old female, with medical history of obesity, diabetes mellitus, and previous stomach stapling, presented with panniculitis and a grade 3 panniculus ulcer. The ulcer measured 4cm x 8.5cm x 3cm with 80% devitalized tissue and foul-smelling, purulent discharge (Figure 2A). After 9 days of ROCF-CC; V.A.C. VERAFLO CLEANSE CHOICE™ Dressing NPWTi-d (38 mL hypochlorous solution with a 10-minute dwell time, followed by 2 hours of NPWT at -125 mmHg), the wound displayed >90% viable tissue (Figure 2B). The dressing changes were done at 48 to 72-hour intervals. The patient was transitioned to standard NPWT and discharged to a skilled nursing facility the same day NPWT was initiated.

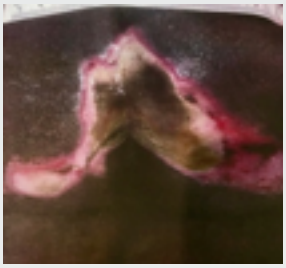
DISCUSSION

Based on our initial experience, the ROCF-CC dressing demonstrated unique properties that allowed effective and rapid removal of thick exudates in large complex wounds that contained substantial areas of devitalized tissue. We also observed that NPWTi-d with ROCF promoted excellent development of underlying granulation tissue. In the two cases presented, the dressing was used safely in severely debilitated as well as frail patients.

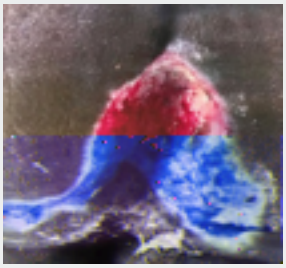
The term "frailty" has become more commonly used in the medical and surgical literature to describe a multifactorial state of general physical weakness, often under recognized patient vulnerability and decreased physiologic reserve. Perioperative risk is heterogeneous in this group, and age and comorbidities, in and of themselves, fail to predict functional deficits and cannot adequately predict operative and perioperative morbidity and mortality in this population group.[17-24] In a recent systematic study, it was noted "in patients over 75 years of age, frailty has been found to increase post-operative complications; prolonged length of stay; 30-day mortality and discharge to long term care facility" (eg, long-term acute care hospital and/or skilled nursing facility). These findings were noted, "irrespective of the type of surgery conducted "and were found to be consistent across different frailty measurement techniques. The majority of the current literature investigating frailty and surgery has defined 'geriatric' as those above 60 or 65 years old. Studies in this patient population have recognized frailty being more prevalent with increasing age. A recent systematic review incorporating 31 studies of frailty in persons 65 years or older found a prevalence of from 4.0% to 17.0% (mean 9.9%) of physical frailty, with a higher prevalence when psychosocial frailty was also included. [25,26] Thus, in our two cases, NPWTi-d was chosen for therapy, as these patients were not candidates for surgical debridement due to their underlying comorbidities contributing to their perceived frailty risk.

It is interesting to note that the use of NPWTi-d with ROCF-CC may potentially decrease cost of care by assisting in bedside wound cleansing and reducing the need for debridement in the OR. However, further study is warranted in the use of this novel treatment modality to determine the clinical benefits and its cost effectiveness in wound care. This will help to more clearly define and inform best evidence-based practice guidelines for its clinical application in the case of patients with complex chronic wounds.

FIGURE 1. Sacral pressure injury

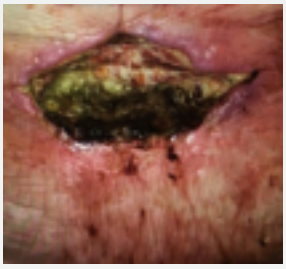


A. Wound at presentation



B. Wound after 24 hours of NPWTi-d with ROCF-CC

FIGURE 2. Pannicular ulcer



A. Wound at presentation

B. Wound after 9 days of NPWTi-d with ROCF-CC

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