

EFFICACY OF NEGATIVE PRESSURE WOUND THERAPY COMPARED TO STANDARD OF CARE ON PATIENTS WITH ULCERS AND OTHER NON-HEALING CHRONIC WOUNDS: A SYSTEMATIC REVIEW

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ABSTRACT

Background: This study was conducted to examine the efficacy of negative pressure wound therapy (NPWT) on chronic non-healing wounds. **Objective:** The systematic review looked at studies that used NPWT on patients with chronic or non-healing ulcerations compared to the specified “standard of care” for each study. **Methods:** PubMed and Embase were used to conduct a thorough search. Inclusion criteria for this study were: (1) articles written in English, (2) researchers used human participants, (3) studies published between 2008 and 2018, (4) ulcers due to venous stasis, decubitus ulcers, diabetic foot ulcers, and non-healing wounds, (5) compared NPWT vs standard of care defined by the study.

Results: Nine studies were selected for inclusion in the review. The studies were assessed with regard to specific outcomes: number of patients to achieve 75% wound closure (1), amount of decrease of wound size (5), time to wound closure (1), time to achieve 50% wound volume reduction (1), number of participants to achieve granulation tissue (4). All outcomes of interest exhibited a p-value of <0.049 between NPWT and standard of care groups. The effect size for the outcomes of interest were assessed as either an odds ratio (1.57-35.48) or Cohen’s d (0.623-6.863). All results were found to be significant and favored the use of NPWT. **Conclusions:** NPWT was shown to be a more effective treatment strategy for chronic wounds rather than standard of care alone. The clinical implication is that when treating chronic or non-healing wounds, negative pressure wound therapy technique needs to be considered.

Keywords: Negative pressure, wound healing, ulcers, chronic wounds.

INTRODUCTION

Chronic wounds are classified as wounds that have failed to heal during the normal timeframe. Chronic wounds impact 8.2 million (15%) Medicare beneficiaries. This large volume of beneficiaries affected accounts for an estimated annual cost ranging from \$28-\$32 billion [1]. The study by Nussbaum *et al.* looked at the cost from surgical wounds, infections, and diabetic foot ulcers [1]. The study also took into account the variation between inpatient and outpatient reimbursement for wound care [1]. Through looking at the large cost generated by chronic wounds, finding a reasonable and efficient means to increase the rate of healing to decrease the cost generated by non-healing wounds should be a point of focus within the healthcare field. Diabetic ulcers may constitute a large percentage of chronic wounds and according to the literature, diabetic foot ulcers (DFUs) present a significant risk for nontraumatic foot amputations [15, 16]. Diabetic foot ulcers also present costly consequences such as infection and gangrene [17] and they are difficult to heal. Diabetic ulcers are not the only ulcers difficult to heal. Laa *et al.*, in their review listed difficult-to-heal wounds as dehisced wounds, pilonidal sinus, infected wounds and pressure ulcers [12].