

A Pragmatic Retrospective Cohort Study Evaluating Clinical Outcomes in High Risk Patients with Chronic Lower Extremity Ulcers Treated with NPWT Therapy as Compared to Standard Therapy: Early Advance Wound Care Pays Off

Min Yao, Khaled Attala, Nanjin Park, Hisae Hayashi, Matteo Fabbi,
Michael A French, and Vickie R Driver¹

Limb Preservation and Wound Care Research
Department of Surgery
Boston University Medical Center and
Boston University School of Medicine

¹Correspond to: Vickie R Driver. DPM, MS, FACFAS

Purpose: To evaluate efficacy of Negative Pressure Wound Therapy (NPWT) on wound healing in high risk patients with multiple co-morbidities and chronic lower extremity ulcers across a continuum of care settings.

Method: A retrospective cohort study of real world high risk patients was conducted using Boston University Medical Center electronic medical record data, along with detailed chart review.

Results: 171 NPWT patients, matched with 171 non NPWT patients on age within 5 years and gender, are included in this cohort since 2001. COX proportional hazard model was used to control for confounders (i.e. severity of disease and co-morbidities). After adjusted for potential confounders, NPWT patients were 2.63 times (95%CI=1.87-3.70) more likely to achieve wound healing compared to non NPWT patients. More over, incidence of wound healing in NPWT patients were increased in diabetic ulcers (HR=3.26, 95% CI=2.21-4.83), in arterial ulcers (HR=2.27, CI=1.56-3.78) and in venous ulcers (HR=6.31, 95% CI=1.49-26.6) compared to non NPWT patients. Additionally, wound healing seems to be positively affected by timing of NPWT application. Compared to later NPWT users (1 year or later after ulcer onset), early NPWT users (within 3 months after ulcer onset) and intermediate NPWT users (4-12 months after ulcer onset) respectively had 3.38 and 2.18 times more likely to achieve wound healing.

Conclusion: NPWT was effective in accelerating wound healing in patients with chronic lower extremity ulcers and co-morbidities in pragmatic continuum of foot care. Early NPWT application may yield more wound healing benefits.