Innovative Approach to Treatment of Refractory Lower Extremity Surgical Wounds Using Transforming Powder Dressing (TPD)

Nicole Lerner, BS, Medical Student, Loma Linda University
Arthur DeBaise, MD, Plastic & Reconstructive Surgery, AdventHealth, Orlando, FL

Symposium on Advanced Wound Care (SAWC) Spring 2024 Meeting | May 15 – 18 | Orlando, FL

INTRODUCTION

Lower extremity (LE) wounds are a significant healthcare burden with devastating consequences if not treated properly. Treatment of chronic LE wounds varies depending on size, location, wound etiologies as well as overall patient health and comorbidities. Risk factors include diabetes, poor circulation, obesity, smoking, immobility and age. Current standard of care (SOC) includes surgical procedures, wound compression, conventional dressings, negative pressure wound therapy (NPWT) and skin substitutes.

New treatment paradigms are emerging which may address factors contributing to poor outcomes for patients with chronic LE wounds. Optimized tissue management, infection control, tissue repair, and moisture balance within the wound bed are critical factors related to mitigation of wound progression.[1,2,3] We review an innovative approach to a newly emerging treatment paradigm with a transforming powder dressing (TPD*).

METHODOLOGY & MATERIALS

We present results of two subjects with LE wounds refractory to SOC. Treatments for both were converted to TPD.

Transforming Powder Dressing (TPD) is a powder dressing comprised primarily of biocompatible polymers (similar to those used in contact lenses). Upon hydration with saline, TPD granules aggregate to form a moist, oxygen-permeable barrier that protects the wound from contamination while helping to manage excess exudate through vapor transportation. Once applied, TPD may be left in place for up to 30 days. Additional powder may be added ("topped off") as needed without requiring primary dressing changes. TPD dries and flakes off as the wound heals.

DISCUSSION

These challenging patients experienced enhanced healing with TPD relative to SOC. TPD provided improved wound healing while requiring less overall labor, material and facility resources and expenditures compared to SOC for these patients.

REFERENCES

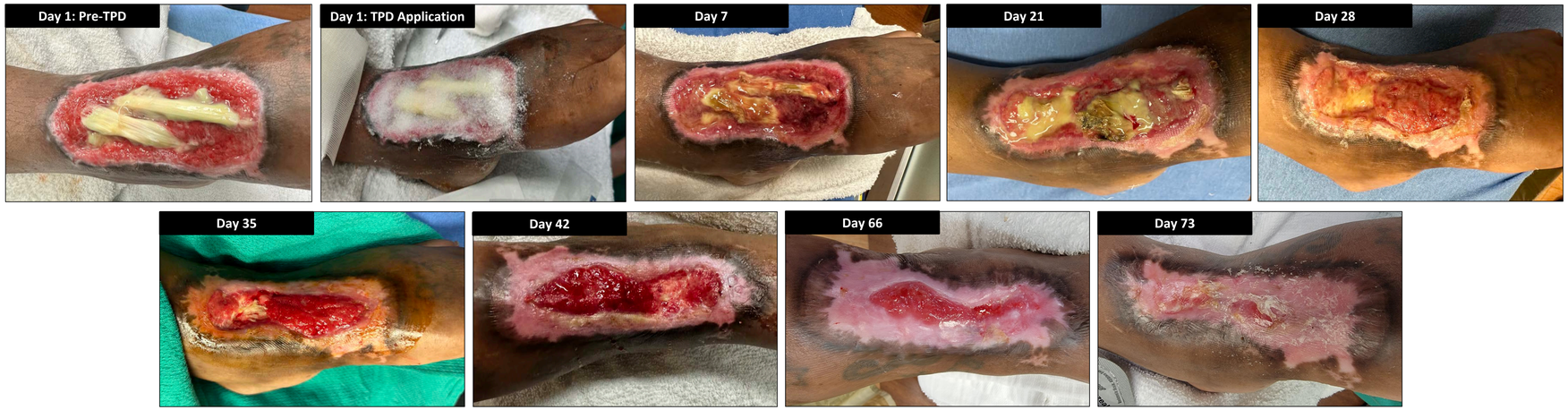
(1) Falanga V. Wound bed preparation: science applied to practice. In: Calne S, ed. Wound Bed Preparation in Practice. European Wound Management Association (EWWA). London, United Kingdom: MEP Ltd; 2004. (2) Moore Z, Dowsett C, Smith G, et al. TIME CDST: an updated tool to address the current challenges in wound care. J Wound Care. 2019;28(3):154-161. (3) Stevenson P, Schultz G. 2019 international consensus includes biofilm treatment as new standard of care. Wound Manag Prev. 2019;65(7). | ***Acknowledgements:*** *This poster was created in collaboration with Altrazeal Life Sciences Inc. All clinical cases and analyses were performed independently by the authors and no compensation was paid. For application instructions and risks of this device please refer to Altrazeal Instructions for Use.* | EDU-0144

**Altrazeal® Transforming Powder Dressing*

RESULTS

PATIENT 1

History: 67 y/o diabetic male with venous insufficiency presenting s/p endoscopic vessel harvesting s/p CABG with a nonhealing surgical incision ankle wound
Wound Dimension: 6 x 2 cm | **Wound Duration:** 36 days
Initial Treatment: Wound failed to respond after being treated with antibiotics, incision and drainage, and NPWT (3.0x/week)
TPD Treatment: Granulation was noted at week 1 | Wound healed in 62 days (9 weeks) with 9 applications/top offs (1/week) | Patient reported significant pain reduction



PATIENT 2

History: 40 y/o paraplegic female with bilateral ankle wounds secondary to leg/fractures/trauma s/p fall
Wound Dimension: R: 6 x 6 cm | L: 9 x 5 cm | **Wound Duration:** 43 days
Initial Treatment: Wounds after open reduction and internal fixation surgery, were treated with I & D (x2), NPWT (once) and skin substitutes (2 applications) without improvement
TPD Treatment: Improvements observed after week 1 | Left wound healed fully and right wound was 95% healed in 77 days (11 weeks) with 8 applications/top offs (0.7x/week)