

USE OF A BIOFILM DISPERSING WOUND GEL AS INTERVENTION IN CHRONIC WOUNDS

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Introduction

Wound healing is optimized by utilizing therapies that control biofilm and planktonic bacteria, bacterial burden, attenuate tissue inflammation, support extracellular matrix regeneration and maintain a homeostatic healing environment.

70-80% of chronic wounds have a tenacious biofilm resulting in stagnant progress to closure. Biofilms cause a chronic inflammatory environment also potentially results in peri-wound dermal lymphatic stasis, resulting in suppressed local immune function. Disruption of biofilms requires the breakdown and/or removal of the polymeric sugars, cellular debris (including host and microbial DNA), and the extracellular polymeric substances (EPS). Incomplete management of these biofilm characteristics contributes to incomplete biofilm therapy.

Ineffective biofilm management contributes to the inefficiency of healing, a negative impact on outcomes of other product applications (ECMs and CTPs), and a general increase in the negative economic burden of chronic wound care. Topical antimicrobials are considered a standard of care for chronic wound therapy. Yet, current systemic and topical antimicrobial therapies vary in efficacy against biofilm-forming pathogens and impact on the healing process due to bioavailability or resistance patterns. In addition, topical antimicrobials that reduce the bacterial bioburden within a chronically infected wound typically do not possess the ability to manage and eliminate the totality of the wound biofilm matrix and may have harmful effects on the healing process. We report 4 chronic wound cases using Biofilm Dispersing Wound Gel (BDWG) technology that alters wound biofilm matrix to decrease inflammation and advance wound closure.

Objective

This 3-patient pilot study evaluated the total wound area reduction when treated with the BDWG products over an ~ 8-16 week treatment periods.

Our Wound Healing Institute routinely performs;

-ABI, venous competency studies, dermal lymphedema therapy with fuzzywale knit stockings under Velcro Inelastic, use of micronutrients (Vitamins B12, B6, C, D, folic acid, zinc) and Diosmin Micronized Purified Flavonoid Fraction

Methods

This is a single-site, open label, case series, 4 patients with complex chronic wounds not responsive to standard of care.

- Protocol:
- Perform appropriate and indicated sharp debridement
- Soak wound with HOCL for 10-15 minutes
- Apply BDWG to wound
- Cover with either a foam or xeroform
- Apply fuzzywale knit circumferential dermal stimulating sock and overlay Velcro inelastic compression

Patient 1 76 yo F, Hydroxyurea utilization for thrombocytosis, JAK2 negative, chronic left leg ulceration, ABI wnl



BDWG initiated 11/30/2022



12/28/2022



Wound Closed 3/23/2023

Patient 2 86 yo female, chronic left medial distal calf wound in setting of peripheral arterial disease, ABI <0.5 occluded left lower extremity revascularization, no tobacco utilization.

Have utilized extensive prior adjunctive therapies, arterial boot rental for the past 6 months



BDWG initiated 12/19/2022



01/24/2023



Wound Closed, no drainage, 02/21/2023, remains closed 3/28/2023

Patient 3 64 yo male, chronic pyoderma lesion having maximized dermatologic systemic and local options



BWG initiated 11/17/2022



11/28/2022

02/09/2023
Significant decrease pain, Inflammation, wound size decreased 15% wound closure 10 weeks, improved Granulation tissue that allowed CTP application



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BDWG in 4 challenging wound takeaways

- **Wound bed and inflammatory periwound management can improve wound closure outcomes**
- **BDWG technology is non-toxic and deconstructs the elemental components of the biofilm (disrupting the EPS), which results in the exposure of the bacteria within the biofilm.**
- **The combination of the surfactant qualities and a high osmotic imbalance results in bacterial cell wall destruction.**
- **BDWG also aids in the healing process by maintaining a moist wound environment. Interim analysis of 4 chronic wound cases that had not responded to multiple standard of care therapies demonstrates a positive response to BDWG therapy.**
- **Further clinical evidence in similar cases, specifically pyoderma gangrenosum, is indicated.**
- **BDWG therapy has high potential to positively impact wound closure rates by decreasing inflammation**
- **BDWG Therapy was used as part of a standard of care with dermal lymphatic stimulation, compression, adjunctive micronutrient and MPFF use.**