

Collagen Carboxy-methyl Cellulose for the Management of Chronic Nonhealing Wounds

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Exceptional Results

Background/Objective

Non-healing wounds can have many complications including socio-economic and psychological strains. Normal wound healing moves through phases in a timely and uncomplicated fashion; hemostasis, inflammation, proliferative, and remodeling/maturation (1). Chronic wounds, those that have been present for greater than six months, deviate from the expected sequence of repair (2).

As wound healing stalls, providers must identify the barriers that inhibit the wound from moving to the next phase. Some barriers can include heavy drainage, high bioburden, excessive non-viable tissue which can delay or limit epithelialization of the wound margin. When barriers are identified, interventions are directed to correct the problem and support the healing process. Delays in wound healing most commonly occur during the inflammatory and proliferative phases.

During these phases, leukocytes and cytokines release proteases that damage and degrade the extracellular matrix. Efforts to inhibit the release and activity of these proteolytic enzymes can allow the wound healing process to continue (3). Biostep™ (Smith and Nephew, Largo, FL) is a collagen, carboxy-methyl cellulose and sodium alginate product that facilitates epithelial migration and tissue regeneration via unique properties. Biostep™ contains EDTA (Ethylene Diamine Tetracetic Acid) which inhibits the detrimental effects of proteolytic activity in chronic wounds (4).

Methods

The study group consisted of patients with wounds that stalled in the inflammatory and proliferative phases of wound healing. These patients were treated with Biostep™. We present a series of cases which illustrate our clinical experience.

1. Sussman, C. (1998). Wound Care: A Collaborative Practice Manual for Physical Therapist and Nurses. Gaithersburg, MD: Aspen Pubs, Inc.
2. Lazarus, G.S. (1994). Definitions and guidelines for assessment for wounds and evaluations of wound healing. Archives of Dermatology 130(4) 489-493.
3. Hart, J. (2002). Inflammation 2: Its role in the healing of chronic wounds. Journal of Wound Care 11: 245-249.
4. Cockwill, J. (2007). Clinical in market evaluation protocol. Smith & Nephew Wound Management Inc.

Results/Case Report 1

This is a 68 year old insulin diabetic female with non-healing wound to L anterior ankle for 4 years. Wound failed to heal despite maximization of arterial flow and local wound care with cadexomer, enzymatic agents, ultrasonic assisted wound therapy and compression to control edema. After initiation of product wound base progressed to near closure after 5 weeks of therapy, with dressing changes twice a week.



Pre BioStep™



2 weeks post BioStep™

Results/Case Report 2

This is a 57 year old diabetic male, status post L TMA. Despite maximum offloading and local wound care, wound failed to progress. Patient achieved significant contraction of wound in 2 weeks after initiation of product in addition to continuation of offloading.



Pre BioStep™



2 weeks post BioStep™

Results/Case Report 3

This is a 75 y.o. male with a PMH of hypertension, venous insufficiency, and non healing wound for 4 months. Previous wound care prior to product initiation included compression and topical antimicrobial care. Wound progressed to closure after 4 weeks of therapy.



Pre BioStep™



4 weeks post BioStep™

Conclusion

After six weeks of Biostep™ application, participants were found to have increased granulation tissue and epithelialization of their wounds. Biostep™ is an effective management option in select wounds that have stalled.