Enhanced Clinical Effects of Combining Recombinant PDGF with Collagen Dressings in Difficult to Heal Chronic Wounds

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BACKGROUND: It is well established that growth factors, their cellular receptor proteins, and extracellular matrix (ECM) proteins play key roles in promoting normal wound healing. Multiple clinical studies have established that chronic wounds with elevated protease activities (EPAs) do not heal well, presumably due in large part to proteolytic destruction of growth factors (GFs) that are essential for healing.1,2 This led to the development of a topical preparation of recombinant human platelet derived growth factor (rPDGF-1) that is approved for treatment of lower extremity diabetic neuropathic ulcers that extend into the subcutaneous tissue or beyond and have an adequate blood supply. In addition to frequent debridement, which presumably reduces EPA,3 combining rPDGF with collagen dressings has been reported in case series over the years4 to enhance its clinical effect, presumably by protecting the rPDGF from proteolytic destruction through reversible binding and then re-release as the collagen matrix biodegrades. Additionally, some dressings provide a dermal template that enhances migration of wound cells into the wound bed.

PATIENTS STUDIED: We have utilized this combination for the past 12 years on chronic wounds that have either been slow to progress or as an initial treatment for patients who will be predictably difficult to heal due to chronic conditions or past wound history. Eight representative patient cases are presented with their key clinical data from the past 12 years that utilized this combination therapy of rPDGF and collagen containing dressings.

RESULTS: The chronic wounds in these representative 8 cases showed remarkable improvement with robust granulation tissue, and in 7 of them covering exposed bone, tendon or fascia in a relatively short period of time.

CONCLUSIONS: While there are an ever growing number of advanced cellular and tissue products available, there are reimbursement challenges with bundling of services and procedures, differences in reimbursement based on payer source, wait times until more advanced products can be utilized as well as often high co-pays for the patients. Utilizing this combination as soon as the wound is prepared can take the wound to closure in some cases, but also provide for an improved wound bed for better results with the advanced products.


1. 54 year old male, 24 days, excellent healing, ulcers healed.
2. 37 year old male, 23 days, low output wound, dressing removed.
3. 45 year old male, 22 days, chronic ulcer.
4. 45 year old female, 33 days, wound healing.
5. 68 year old male, 28 days, mixed dermal and epidermal.
6. 54 year old male, 25 days, ulcers healed.
7. 42 year old female, 30 days, leg ulcer.
8. 54 year old male, 26 days, ulcers healed.

1. 54 year old male.
2. 81 year old male, same CABC with arterial insufficiency.
3. 57 year old male, CABC with arterial insufficiency.
4. 69 year old Hispanic female, type 2 diabetes.
5. 62 year old hispanic female, type 2 diabetes.
6. 54 year old female, 8 days post debridement.
7. 57 year old male, 35 days post debridement.
8. 56 year old male, 18 days post debridement.

1. 54 year old male, ulcer healed, post debridement.
2. 54 year old female, 35 days post debridement.
3. 56 year old male, 40 days post debridement.
4. 62 year old male, 25 days post debridement.
5. 54 year old male, 30 days post debridement.
6. 54 year old female, 7 days post debridement.
7. 54 year old male, 21 days post debridement.
8. 63 year old male, 27 days post debridement.