Corticosteroids and Wound Healing

Dear Readers,

Many times advances in medicine can be revolutionary and provide great benefits. Unfortunately, there may also be a price to pay for these discoveries, such as the presence of an unwanted side effect or response. This is no truer than in the discovery and use of corticosteroids. Hench and his colleagues reported the wonderful improvement in patients with rheumatoid arthritis when they were treated with corticosteroids. The results were nearly miraculous compared with what had been available to treat the disease before. Additional uses of the drug in the treatment of many inflammatory conditions soon followed. Unfortunately, the side effects of delayed and disrupted healing were soon realized. It has been found that corticosteroids influence all phases of wound healing, thus becoming a major concern for all health care professionals treating wounds. Since many of our patients with wounds are receiving corticosteroids for non-wound problems and are unable to stop them while the wound is treated, what are we to expect and do? There are also wounds caused by inflammatory diseases of the skin that require treatment with corticosteroids. Will the wound heal with routine treatment?

The effect of corticosteroid administration should be divided into 2 groups to appreciate the effects on healing. Acute administration of the drug will have different effects on the healing wound than chronic administration. Patients with conditions requiring even high dose corticosteroids, if the medication is given for less than 10 days, will have no effect on wound healing. This should cover any patient with a wound that requires treatment of an acute arthritis, acute gout, or other acute problem. It is also of note that if corticosteroid therapy is started 3 days or longer after receiving an acute or operative wound, there will be no wound healing effects.

The chronic treatment with corticosteroids presents different hazards for wound healing. Chronic corticosteroid use is defined as taking the drug at doses of greater than 10 mg/kg of body weight for more than 1 week. Patients treated for 30 days prior to wounding or an operative procedure were reported to have had a 2-fold increase in wound infection, 2 to 3 times higher incidence of wound dehiscence, and a 4 times greater mortality compared to those not taking steroids for that period of time. In another study, rheumatoid arthritis patients taking corticosteroids and having joint replacement surgery had a significantly higher incidence of delayed wound healing if they had taken the steroids for more than 3 years compared to those who had taken the drug for less than 3 years. Clearly, chronic corticosteroid therapy will present a problem with wound healing.

If our patients have been on corticosteroids for a long period of time, are we just left to tolerate the wound healing delays? Is there nothing that can be done? Thomas K. Hunt, MD, a friend to many of us, has found that vitamin A can reverse the effects of corticosteroids on wound healing. This is a strategy we have found useful in our wound center also. Selective glucocorticoid receptor modulators, or drugs that have the anti-inflammatory effect, but not the effect on wound healing, are being developed to minimize the problem with wound healing but maximize the anti-inflammatory effect. Work is also being done modulating cytokines in the wound to counter the effects of corticosteroids. These are exciting new approaches to help our patients with wounds who must continue their corticosteroid therapy.

In summary, we know that short term (less than 10 days) administration of corticosteroid therapy is unlikely to have any major effect on wound healing, especially in acute wounds. For patients on high dose and/or long-term corticosteroid therapy, wound healing will be affected but may be helped by concomitant treatment with vitamin A. We should continue to be on the lookout for new therapies that can help.
that will help our wound patients with this problem. As time progresses, more patients will probably be on corticosteroids and we must be ready to provide the best treatment possible for them.

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Dermagraft® Human Fibroblast-Derived Dermal Substitute Essential Prescribing Information

Numbers in parentheses [ ] refer to sections in the Directions for Use of the product labeling.

Device Description: Dermagraft is a cryopreserved human fibroblast-derived dermal substitute. (1)

Intended Use/Indications: Dermagraft is indicated for use in the treatment of full-thickness diabetic foot ulcers greater than six weeks duration which extend through the dermis, but without tendon, muscle, joint capsule, or bone exposure. Dermagraft should be used in conjunction with standard wound care regimens and ointments, creams, or gels) on an ulcer being treated with Dermagraft as such preparations may cause oedema in the area of application. Dermagraft, subsequent sharp debriement of the ulcer should continue as necessary. Additional wound preparation should minimize disruption or removal of previously implanted Dermagraft. (13)

Patient Counseling Information: After implantation of Dermagraft, patients should be instructed not to disturb the ulcer site for approximately 72 hours (three days). After this time period, the patient, or caregiver, should perform the first dressing change. The frequency of additional dressing changes should be determined by the treating physician. Patients should be given detailed instructions on proper wound care so they can manage dressing changes between visits. Compliance with off-weight-bearing instructions should be emphasized. Patients should be advised that they are expected to return for follow-up treatments on a routine basis, until the ulcer heals or until they are discharged from treatment. Patients should be instructed to contact their physician if at any time they experience pain or discomfort at the ulcer site or if they notice redness, swelling, or discharge around or from the ulcer. (8)

How Supplied: Dermagraft is supplied frozen in a clear bag containing one piece of approximately 2 in x 3 in (5 cm x 7.5 cm) for a single-use application. The clear bag is enclosed in a foil pouch and labeled unit carton.

Caution: Dermagraft is limited to single-use application. Do not reuse, reseal, or sterilize the product or its container. Dermagraft is manufactured using sterile components and is grown under aseptic conditions. Prior to release for use, each lot of Dermagraft must pass USP Sterility (14-day), endotoxin, and mycoplasma tests. In addition, each lot meets release specifications for collagen content, DNA, and cell viability.

Dermagraft is packaged with a saline-based cryoprotectant. This solution is supplemented with 10% DMSO (Dimethylsulfoxide) and bovine serum to facilitate long-term frozen storage of the product. Refer to the step-wise thawing and rinsing procedures to ensure delivery of a metabolically active product to the wound bed. (9)

Customer Assistance: For product orders, technical support, product questions, reimbursement information, or to report any adverse reactions or complications, please call the following number which is operative 24 hours a day:

Shire Regenerative Medicine Customer Service
(877) DERMAGRAFT or (877) 337-6247
Caution: Federal (U.S.) law restricts this device to sale by or on the order of a physician (or properly licensed practitioner).

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