Split-Thickness Skin Graft Donor Site Dressing: Preliminary Results of a Controlled, Clinical Comparative Study of MEBO and Sofra-Tulle

Bishara S. Atiyeh, MD, FACS; Georges Ghanimeh, MD†; Imad L. Kaddoura, MD*; John Ioannovich, MD‡; Christian A. Al-Amm, MD*

MEBO (Moist Exposed Burn Ointment; Julphar Gulf Pharmaceutical Industries, Ras Al-Khaimah, UAE) is a topical agent used primarily for treatment of burns. It is essentially a Chinese ointment of herbal origin and has been a United States patented formula since 1995. Beta-sitosterol (C29H50O), which has an anti-inflammatory effect, is its main active component.

A limited clinical trial on split-thickness skin graft donor sites was conducted in 15 consecutive patients to assess the action of MEBO compared with the conventional Sofra-Tulle (Roussel Laboratories Ltd., Uxbridge, UK) split-thickness skin graft donor site dressing used in our service. All patients included in the study were white, with Fitzpatrick skin types II and III (age range, 5–65 years). The same patient as well as the same donor site was used to study MEBO and the control (Sofra-Tulle). Donor sites other than the upper thigh were excluded from the study. Patients requiring thicker skin grafts than the previously set thickness for the study were also excluded.

A Padgett electric dermatome was used in all patients to harvest a skin graft 0.12 in thick. MEBO was applied to half the split-thickness skin graft donor site surface area at the end of surgery in a thick layer, and was then covered by a thin, nonocclusive, semiopen dressing. MEBO was reapplied and the dressing changed daily until complete reepithelialization was observed. The other half of the donor site was covered using conventional Sofra-Tulle and a bulky gauze dressing that was held in position with an elastic bandage. Twenty-four to 48 hours later, the bandage was removed and the now-adherent gauze was kept uncovered and undisturbed, in place, until spontaneous separation occurred, which indicated complete reepithelialization.

Because observations related to degree of hyperemia, pigmentation, and cosmetic appearance are only subjective and are difficult to measure or quantitate, photographic documentation at regular intervals was felt to be the best objective way to measure differences between the two treatment modalities. Patients and parents of pediatric patients were also questioned about their preferences and their degree of satisfaction regarding results. The longest follow-up in this study was 18 months.

The MEBO dressing offered the advantages of a moist environment for wound healing in addition to the advantages of the open treatment technique, avoiding cumbersome, bulky, and expensive dressings. MEBO-treated areas were observed to reepithelialize completely within a mean of 5 days whereas the conventionally treated areas required a mean of 12.2 days for the dressing to separate and all bleeding and denuded spots to heal. In one adult male patient, hair growth in the MEBO-treated area was observed to
proceed at a much faster rate than the control area. In all patients there was lack of epidermal sliding in the MEBO-treated area comparable with normal skin. Variable degrees of epidermal sliding could be demonstrated in control areas for prolonged periods postoperatively. The MEBO-treated areas were markedly less hyperemic and less pigmented. The final cosmetic appearance as well as patient satisfaction and preference were by far weighted toward the MEBO-treated areas (Fig). Even though no frank infection was documented in either group, the areas treated with Sofra-Tulle experienced frequent, patchy, forceful, early separation of the adherent gauze with bleeding and subsequent limited suppurative infection exacerbating the inflammatory response. In one particular patient, forceful separation was marked and repetitive, and the traumatized wound bed became severely hyperpigmented and slightly hypertrophic.

Even though the full action of MEBO has not yet been fully explored, its ease of application as well as its documented safety thus far and reasonable cost, in addition to its apparent capacity to promote speedy healing with excellent cosmetic outcome, make it a near-ideal dressing for split-thickness skin graft donor sites. Differences between the two treatment modalities as documented photographically were genuine although not validated statistically. Preliminary observations made from this initial limited yet controlled study regarding decreased hyperemia and pigmentation, and lack of epidermal sliding in the MEBO-treated areas deserve more investigation. We hypothesize that the decreased hyperemia is most likely the result of increased opacity of tissues overlying the subdermal layer caused by thicker regenerating epithelium or dermis, or both, and that the lack of epidermal sliding is the result of better anchoring of the regenerating epithelium to the underlying dermis.

Reference