

Characterization of Growth Factors From Occluded and Semi-Occluded Partial Thickness Wounds

Michael R. Madden, MD, David P. Hajjar, PhD, Lisa Stalano-Coico, PhD,
Linda M. Pesce, BSN, Jerome Finkelstein, MD, Cleon Goodwin, MD

Burn Center at the New York Hospital
Cornell Medical Center, New York, New York

The application of exogenous growth factors to partial thickness donor sites has recently been reported to accelerate the rate of healing. We have achieved comparable results with the application of occlusive dressings and the creation of a moist environment. The wound fluid exudates collected from beneath these dressings were shown to stimulate the proliferation of human keratinocytes. In this study, we examined wound fluid beneath the retentive dressings for the presence of endogenous growth factors. Wound fluid was collected from donor sites dressed with either the semi-occlusive polyurethane dressing (OPSite*) or the occlusive hydrocolloid dressing (DuoDERM™). Cell-free exudates were collected at 24 and 48 hours. The exudates (at a 10% final concentration) were then tested for their ability to induce proliferation of smooth muscle cells. Exudates from beneath both dressings induced a moderate mitogenic response in smooth muscle cells. Furthermore, when the exudates were pre-incubated with a mixture of neutralizing antibodies against PDGF, basic FGF, and TGF-beta, the mitogenic effect was inhibited up to 70%.

In conclusion, our results indicate that these growth factors, alone or in combination, are present in the wound fluid exudate collected from beneath occlusive and semi-occlusive dressings, and the addition of exogenous growth factors to partial thickness donor sites may, therefore, be redundant.

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