Effect of topical autologous platelet-rich fibrin versus no intervention on epithelialization of donor sites and meshed split-thickness skin autografts: a randomized clinical trial.

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Abstract:

BACKGROUND: Autologous platelet-rich fibrin contains multiple growth factors. The aim of this randomized clinical trial was to study the effect of topical platelet-rich fibrin on epithelialization of donor sites and meshed split-thickness skin autografts.

METHODS: Twenty consecutive leg ulcer patients (median age, 72.5 years) were enrolled between April 1, 2006, and January 31, 2007. Two adjacent donor-site wounds of similar size (57.3 cm versus 62.5 cm) and depth (286 mum versus 298 mum) were made by an air-driven dermatome on the same thigh. One donor wound and one-half of the autografted surgically revised leg ulcer were randomized by concealed allocation to platelet-rich fibrin, and the other donor wound and autografted half were not (control). Biopsy specimens (4 mm) from donor wounds were evaluated for percentage neoepidermal coverage in tissue sections immunostained for keratin on days 5 and 8. Epithelial barrier function, macroscopic healing, microbiology, and pain at dressing removal were assessed. Epithelialization of meshed autografts was assessed macroscopically.

RESULTS: Epithelial coverage of donor wounds did not differ significantly between platelet-rich fibrin and control on day 5 (43.5 percent versus 34.4 percent, p = 0.65) or day 8 (76.6 percent versus 94.8 percent, p = 0.17). Transepidermal water loss was 75.6 g/m/hr in donor wounds treated with platelet-rich fibrin and 71.9 g/m/hr on day 8 in those without (p = 0.26). No statistically

significant differences in macroscopic epithelialization between platelet-rich fibrin and control were found for donor wounds or autografts. Neither bacterial flora nor pain differed significantly between platelet-rich fibrin and control donor wounds.

CONCLUSION: Epithelialization of donor wounds or the interstices of autografts was not significantly influenced by platelet-rich fibrin treatment.