A novel technique combining single-donor platelet gel and fibrin glue with skin graft to heal recalcitrant lower extremity ulcers.

Authors: Burnouf T., Chen T.M., Tsai J.-C.

Publication Date: 2010

Abstract:

Background: There is no ideal procedure for the treatment of chronic skin ulcers. Recently, the use of platelet gel (PG) in this indication has generated great interest. Aim: Evaluate the safety and efficacy of a new procedure combining allogeneic single-donor (S-D) PG and S-D fibrin glue (FG) to enhance skin graft take for treating recalcitrant ulcers. Methods: This study was approved by the Institutional Review Board of Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan. Protocol 096-05-042. The protocol conformed to ethical guidelines of the 1975 Declaration of Helsinki. 15 patients (17 ulcers) who provided their informed consent and presenting various etiology were enrolled. Skin ulcer was debrided and the wound covered with moist saline dressing. 3-14 days later, the wound bed was sprayed with PG that was obtained by activating S-D platelet concentrate by S-D thrombin (obtained by activation of S-D plasma by calcium chloride). Thin-split-thickness skin graft with multiple slits was then put on the wound bed, and finally S-D FG was sprayed on the skin graft. Short leg P-P splint was used to immobilize the skin graft. Results: Most skin grafts took well. The interval between skin graft and complete wound healing ranged from 3 weeks to 2 months. No recurrence of ulcers was noted during the 3-18 months follow-up period. No adverse reactions were observed. Conclusion: The procedure provides dual advantages in skin grafting for recalcitrant ulcers because PG functions as a delivery system of powerful mitogenic and chemostatic growth factors, and FG as a hemostatic tissue sealant that avoids the use of staple or sutures.