

Wounds Close Faster With Autologous Platelets

BY BRUCE K. DIXON
Chicago Bureau

SCOTTSDALE, ARIZ. — The use of topical autologous human platelets was safe and effective for treating dermal wounds in two preliminary studies presented at the annual meeting of the Wound Healing Society.

“Our pilot study provides preliminary evidence that topical autologous platelet gel may hasten wound closure in full-thickness dermal wounds in healthy individuals,” said Dr. David B. Hom of the University of Minnesota Hospital and Clinic in Minneapolis.

Animal studies have shown autologous platelet gel's (APG's) ability to increase wound granulation and organize collagen bundles, but its performance in treating animal wounds has been mixed. Clinical studies, however, have been promising.

To compare APG with conventional wound treatment, Dr. Hom and his associates created 80 full-thickness skin-punch wounds, each 6 mm in diameter, on the thighs of four men and four women. With each person serving as his or her own control, APG was applied topically to five sites per leg, while the opposite thigh had an antibiotic ointment and/or a semiocclusive dressing applied as the control, also on five punch sites per leg.

Biopsies showed that wound closure occurred significantly faster in the APG-treated sites. On day 17, the APG sites were, on average, 81% closed, vs. 57% for controls.

The biopsy findings correlated with digital planimetry photographic measurements taken over a 42-day period, and the APG wounds closed significantly faster than the controls within 14 days of wounding. “At 28 and 31 days, half of APG-treated wounds reached full closure vs. 15% of controls, though the controls did catch up by day 42,” Dr. Hom explained.

Experimental and control sites over time were histologically similar. “APG should not be used in its present state in patients allergic to bovine products,” he cautioned.

In another presentation at the meeting, New Jersey researchers reported that a thrombin-free autologous platelet-rich fibrin matrix (PRFM) “appears to show significant potential for accelerating complete closure of chronic venous leg ulcers and maintains an extended-release source

of growth factors, obviating the potential harmful potential of bovine thrombin,” which is used in other dressings, including APG. Bovine thrombin can trigger a harmful immune response.

The ongoing prospective study, led by Sean M. O'Connell, Ph.D., involved 11 patients with venous leg ulcers and 6 with nonvenous leg ulcers, all of which had been unresponsive to a variety of standard treatments for at least 4 months. Each PRFM-treated patient received up to three

applications of a 50-mm fenestrated membrane. PRFM was prepared at bedside from 36 mL of whole blood from which platelet-rich plasma was isolated and processed to produce a 100- μ m-thick membrane with 50-100 times the platelet-fibrin concentration of whole blood.

By 8 weeks, closure was complete in 7 of the 11 patients with venous leg ulcers. In the nonvenous ulcer group, 50% closure was achieved, said Dr. O'Connell of Englewood (N.J.) Hospital and Medical Cen-

ter and Mount Sinai School of Medicine in New York. “We see a sustained and consistent release of growth factors over the first 7 days,” he said in an interview.

Dr. Hom acknowledges contract payments for research performed and ad hoc consulting fees. His study was funded by Medtronic Inc. Dr. O'Connell acknowledges contract payments for research performed and ad hoc consulting fees. His study was funded by Cascade Medical Enterprises LLC.

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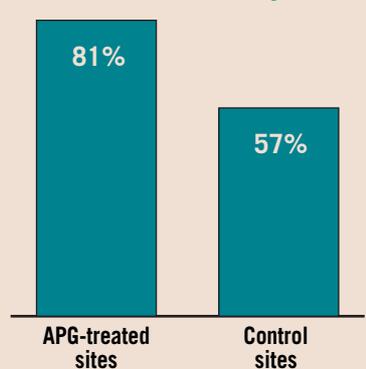
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Average Amount of Closure Per Wound on Day 17



Note: Based on 80 full-thickness skin-punch wounds.
Source: Dr. Hom