Dermacyn, A Novel Superoxidized Solution Facilitates Wound Healing: Early Experience in Leg Wounds and Limb Salvage

David E Allie, MD; Chris J Hebert, RT, R-CIS, Mitchell D Lirtzman, MD; Charles H Wyatt, MD; V Antoine Keller, MD; Adam A Allie, MS; Craig M Walker, MD

Cardiovascular Institute of the South, Lafayette, Louisiana

Purpose: Between 220,000-240,000 lower extremity amputations (LEA) are performed in the US and Europe yearly secondary to diabetic foot ulcers, critical limb ischemia (CLI) and wound infection. 80-85% of LEA are preceded by ulcers with deeper infection and osteomyelitis undoubtedly playing a major role. Dermacyn (Oculus Innovative Sciences, Petaluma, CA) is a FDA-approved stable pH neutral superoxidized solution with intended use as a topical treatment for infected wounds. Significant antimicrobial activity is demonstrated against spores, viruses, and bacteria including pseudomonas aeruginosa, Methicillin-resistant staphylococcus aureus and Vancomycin-resistant Escherichia coli. The mechanisms of action include cellular protein denaturalization and cell wall lysis secondary to cellular osmotic pressure gradients with the hypotonic Dermacyn. Dermacyn is non-toxic to normal cells, does not oxidize fibroblast DNA, and does not cause skin complications.

Infected CVI ulcer of 1-year duration (1A). Non-infected healthy wound bed after t.i.d. Dermacyn wound sterilization and minor debridement (1B). Multiple Apligraf applied as adjuvant treatment (1C). Complete wound healing at 2-months facilitated by wound bed sterilization and preparation utilizing Dermacyn(1D).

Methods: Between June 1 and January 31, 2006 60 consecutive lower extremity wounds (CLI = 49, DFU = 7, CVI = 4) were treated with Dermacyn. A matched control group treated with traditional wound care (TWC) from the prior 6-months was retrospectively analyzed including time to wound healing (WH), limb salvage (LS), and wound treatment (TWC vs. DermacynTM).

Results: Dermacyn WH ranged from 12-87 days (mean = 34) and TWC WH from 20-126 days (mean = 67). The LS for Dermacyn and TWC were 59/60 (98.3%) and 53/60 (90.0%) respectively. There were no Dermacyn complications. 8/60 (13.3%) TWC developed significant skin irritation.

Conclusion:* *Dermacyn facilitated WH in our initial 8-month experience therefore warranting a larger prospective randomized trial

Cardiovascular Institute OF THE SOUTH