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DISCLOSURE
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REFERENCES

The Utility of Hypochlorous Acid Wound Therapy in Wound Bed Preparation and Skin Graft Salvage
Sir:

Sodium hypochlorite solution for use in wound sterilization was first described by Dakin in 1915. Since that time, it has remained a standard therapy for infected or contaminated wounds. Although effective at eliminating harmful bacteria from the wound bed, Dakin solution is also cytotoxic to normal cells within the wound and surrounding tissues. As a result of this toxicity, pain, inflammation, and skin erythema are not uncommon occurrences. Thus, Dakin solution is often delivered in a diluted form and used for only a few days before it must be discontinued.

Recently, a newer hypochlorous acid solution (Vashe; Urgo North America, Ft. Worth, Texas) has been proven as an effective alternative to Dakin solution. Importantly, this solution is at a physiologic pH and thus entirely noncytotoxic to cells yet still carries the same effectiveness at eliminating bacteria. Given its ability to kill bacteria without harming normal cells, we hypothesized that hypochlorous acid wound therapy could be useful in wound bed preparation for skin grafting and in salvaging potentially failing skin grafts in the presence of bacterial overgrowth and contamination.

This hypothesis was tested on four patients with chronic, contaminated wounds that had failed months of prior wound treatments. The microbiology of the wounds before treatment included highly resistant and virulent organisms, including methicillin-resistant Staphylococcus aureus, vancomycin-resistant Enterococcus, and Pseudomonas. The patients were treated with daily or twice-daily application of hypochlorous acid wound therapy to their wounds for 1 week before surgical closure and for a minimum of 1 week after skin graft bolster removal. The treatment consisted of placing hypochlorous acid–soaked gauze onto the wound bed and skin graft site for 15 minutes once or twice daily.

All patients had positive wound cultures for bacterial colonization before hypochlorous acid wound bed preparation. All patients tolerated the prereconstruction treatment without development of maceration or skin irritation. Wound cultures at the time of grafting were negative for persistent bacterial growth, and the appearance of the wound was significantly improved in all cases. All patients had healed skin grafts at 2 weeks without evidence of graft loss, persistent bacterial contamination, or infection. (See Figure, Supplemental Digital Content 1, which shows an 81-year-old patient with a chronic lower leg wound contaminated with methicillin-resistant Staphylococcus aureus. Photographs depict wound before hypochlorous acid therapy treatment, after treatment, and finally with a healed graft, http://links.lww.com/PRS/D334.)

Hypochlorous acid solution is an effective therapy for wound bed preparation before surgical wound closure, especially in the presence of highly resistant microorganisms. In addition, given its noncytotoxic properties and physiologic pH, hypochlorous acid solution can be applied directly to a healing skin graft and can effectively salvage graft healing in patients with known bacterial colonization. Hypochlorous acid solution should be considered the new standard for contaminated wounds, as it offers all of the advantages of traditional Dakin solution, without the risk of harm to surrounding skin and healing tissue.

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