

# The Immediate and Delayed Post-Debridement Effects on Tissue Bacterial Wound Counts of Hypochlorous Acid Versus Saline Irrigation in Chronic Wounds

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## Message:

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Wound debridement is considered essential in chronic wound management. Hypochlorous acid has been shown to be an effective agent in reducing wound bacterial counts in open wounds. Ultrasound-enabled wound debridement is an effective and efficient method of debridement. This study compared ultrasound irrigation with hypochlorous acid versus saline irrigation for wound debridement on pre- and postoperative wounds and determined regrowth of bacteria over 1 week period of time.

## Methods:

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Seventeen consenting adult patients with chronic open wounds were randomly selected for study. The patients were randomly divided into the hypochlorous acid irrigation or saline irrigation group. All patients provided pre- and postoperative tissue samples for qualitative and quantitative bacteriology. For the time (7 days) between the debridement procedure and the definitive closure procedure, the wounds were dressed with a silver-impregnated dressing and a hydroconductive dressing.

## Results:

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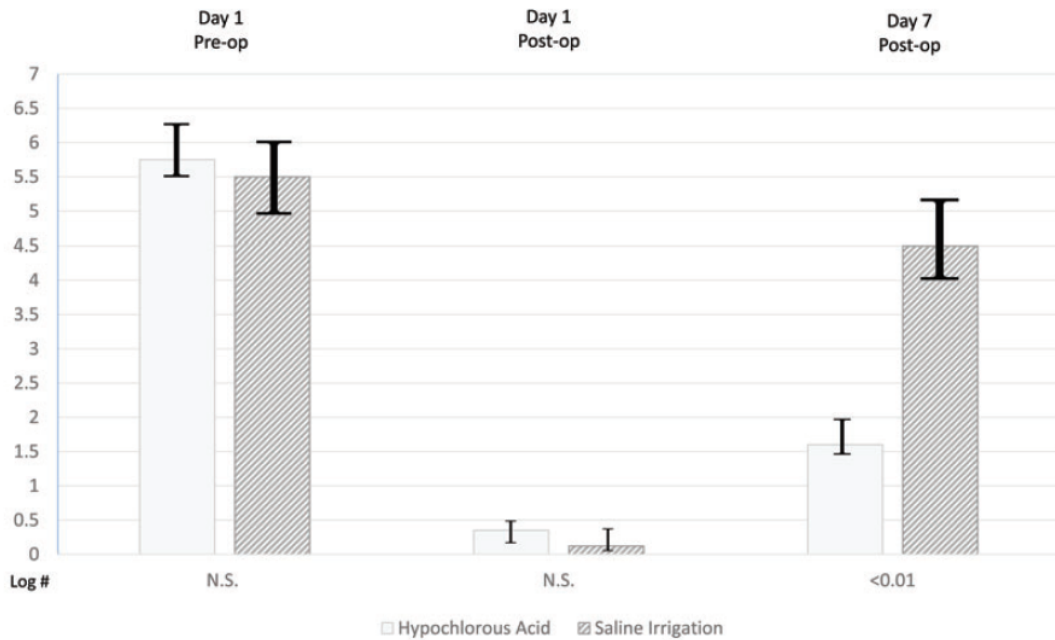
Both types of irrigation in the ultrasonic system initially lowered the bacterial counts by 4 to 6 logs. However, by the time of definitive closure, the saline-irrigated wounds had bacterial counts back up to  $10^5$  whereas the hypochlorous acid-irrigated wounds remained at  $10^2$  or fewer. More than 80% of patients in the saline group had postoperative closure failure compared with 25% of patients in the hypochlorous acid group.

## Conclusions:

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Hypochlorous acid irrigation with ultrasound debridement reduced bacterial growth in chronic open wounds more efficiently than saline alone. Postoperative wound closure outcomes suggest a remarkable reduction in wound complications after wound debridement using hypochlorous acid irrigation with ultrasound versus saline alone.

Mean Bacterial Wound Count Log.  
*Pseudomonas A*  
 In Wound Debridement  
 Using Hypochlorous Acid vs. Saline Irrigation



**Figure 1.** Mean bacterial wound count log. *Pseudomonas aeruginosa* in wound debridement using hypochlorous acid versus saline irrigation.



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