Randomized Controlled Trial > Adv Skin Wound Care. 2014 Jan;27(1):13-9.
doi: 10.1097/01.ASW.0000439060.79822.b3.

Activated chlorine dioxide solution can be used as a biocompatible antiseptic wound irrigant

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PMID: 24343388 DOI: 10.1097/01.ASW.0000439060.79822.b3

Abstract

Objective: The purpose of this study was to compare cosmesis at 3 to 4 months and infection in simple lacerations irrigated with normal saline (NS) versus activated chlorine dioxide (CD).

Design: This was a prospective, randomized trial of a convenience sample of patients. This study was approved by the institutional review board and Food and Drug Administration as a physician-sponsored trial (FDA investigational new drug no. 68762).

Setting: The study was conducted in a large urban, academic emergency department.

Patients: Patients aged 18 to 100 with simple, uncomplicated lacerations requiring repair that were less than 8 hours old were enrolled.

Interventions: Patients were randomized to receive either NS or CD wound irrigation.

Main outcome measures: Demographics, infection, and cosmesis were analyzed and assessed. Cosmetic outcome was assessed at 3 to 4 months using a visual analog scale (VAS), wound evaluation score (WES), patient VAS (VASPt), and digital imaging VAS by 2 plastic surgeons (VASPlast).

Main results: One hundred ninety-three patients were enrolled. Data analysis was available for 175 cases (86 NS and 89 CD). Wound infection follow-up was obtained in 74.9% of the patients. The 3- to 4-month cosmesis follow-up was 37.7% for VAS/WES, 40.0% for VASPt, and 37.7% for VASPlast. There were no significant differences in demographics, key wound characteristics, infection, adverse reactions, and cosmesis.

Conclusion: The authors report the use of a novel antimicrobial irrigation solution. Chlorine dioxide appears to be a safe biologically acceptable antiseptic wound irrigant that does not appear to interfere with cosmetic outcomes.

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