

Effects of irrigation with different solution on Incidence of Wound Infection

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Abstract

Introduction: Management of acute and chronic wounds has significantly altered in the last decade but little attention has been paid to the solution used for cleansing the wounds. Therefore, the present study aimed to compare the effects of tap water, distilled water, and normal saline for wound cleansing in emergency department. **Methods:** This is a double-blind randomized clinical trial with a 10-day follow up. Patients who had superficial wounds were randomly divided into 3 treatment groups: normal saline, distilled water, and tap water. The wounds were cleansed using a 20 - 60 milliliter syringe with an 18 gauge needle. All the patients were discharged with the same antibiotic and were followed 48 hours and 10-day to determine the presence or absence of infection symptoms. The evaluated outcomes were infection incidence in the first 48 hours and 10 days after being discharged. **Results:** 1200 patients were included in the present study (57% male, average age 25.5 ± 11.0 years). 43 (3.5%) patients showed infection symptoms in the first 48 hours. Ten (2.5%) patients were in normal saline treated group, 15 (3.7%) patients were in distilled water group, and 18 (4.4%) patients were in tap water treated group ($p=0.32$). 13 (3.2%) patients in normal saline group, 20 (4.9%) patients in distilled water group and 23 (5.6%) in the tap water group did not take their antibiotics. Prevalence of infection was higher in patients who did not take antibiotics ($p < 0.001$). The 10-day follow-up revealed that all the patients were recovered and showed no infection symptoms. **Conclusion:** The results of the present study showed that the prevalence of infection in using the 3 agents (normal saline, distilled water and tap water) for cleansing wounds was similar. Therefore, drinking water could be considered as an alternative for cleansing wounds.

Key words: Wound infection; wounds and injuries; anti-bacterial agents; emergency service, hospital