Wound Irrigation

**Tap Water for Irrigation**
- As good as sterile saline irrigation. Held wound under tap in sink.
  
  

**OBJECTIVES:** To compare wound infection rates for irrigation with tap water versus sterile saline before closure of wounds in the emergency department.

**METHODS:** The study was a multicenter, prospective, randomized trial conducted at two Level 1 urban hospitals and a suburban community hospital. Subjects were a convenience sample of adults presenting with acute simple laceration requiring sutures or staples. Subjects were randomized to irrigation in a sink with tap water or with normal saline using a sterile syringe. Wounds were closed in the standard fashion. Subjects were asked to return to the emergency department for suture removal. Those who did not return were contacted by telephone. Wounds were considered infected if there was early removal of sutures or staples, if there was irrigation and drainage of the wound, or if the subject needed to be placed on antibiotics. Equivalence of the groups was met if there was less than a doubling of the infection rate.

**RESULTS:** A total of 715 subjects were enrolled in the study. Follow-up data were obtained on 634 (88%) of enrolled subjects. Twelve (4%) of the 300 subjects in the tap water group had wound infections, compared with 11 (3.3%) of the 334 subjects in the saline group. The relative risk was 1.21 (95% confidence interval = 0.5 to 2.7). **CONCLUSIONS:** Equivalent rates of wound infection were found using either irrigant. The results of this multicenter trial evaluating tap water as an irrigant agree with those from previous single institution trials.

- Valente JH Ann Emerg Med 2003:41:609: same infection rates. Pressure was 40 PSI.
- irrigation with tap water not significantly different from irrigation with sterile solution
  
- Does irrigation make a difference on the face? Obs study
  

**Basics**
- The seminal work was done at the University of Virginia by Edlich and Rodheaver. They showed that, for _contaminated_ wounds, that high-pressure irrigation reduced wound infection rates. However, they also showed that it had to be high-pressure (18 ga needle, 35 cc syringe, standard second-year surgical resident) to remove bacteria effectively.
- However, what people often don't remember is that they also showed that high-pressure irrigation causes some edema and actually _increases_ wound infection rates in non-contaminated wounds (e.g., incision with a clean knife, laceration from blunt trauma). For such cases, they recommended using low-pressure irrigation (basically, sloshing some clean water through...
the wound using a blue bulb syringe).  

Homeopathic Solutions for Irrigation?!?!  
- (email)
  On 17 Mar 99, at 11:49, Mkeowl@aol.com wrote:
> Anyway, for my SAR dog and I, I keep and have used diluted Calendula Tincture or Goldenseal Tincture to clean and flush the wounds. For punctures or deep wounds I ONLY use Ledum Tincture, diluted, then Goldenseal.

> I have used these successfully many times. (My conventional vet who is open-minded, said that he is amazed that some of the wounds -- severe punctures, lacerations, >10" torn tissue wounds, healed so well without ANY antibiotics or conventional drugs.)

The recommended treatment for contaminated wounds is high-pressure irrigation with plain sterile (or at least clean) water or saline -- even betadine has tissue-toxic properties (though much less so than peroxide, alcohol, merthiolate, or tincture of iodine).

So I'm not surprised that you've had good results with homeopathic tinctures -- which are to a very high approximation, distilled water -- as this essentially is the irrigant of choice! The chance of a standard homeopathic dilution actually containing even a molecule of Calendula or Goldenseal is tiny.

Certainly homeopathic succussed dilutions are much better for irrigating wounds than alcohol, peroxide or the like. And this sort of "superiority" is what led to Hahnemann's success compared to the quacks of his time who were giving toxic drugs. But luckily, we now have better scientific methods to evaluate drugs, including trials that use randomization and blinding and matched control groups to prevent bias. Much better than Hahnemann's provings.

Take care.
--Keith Conover, M.D., FACEP

Antiseptics for wound irrigation?
- (email) I agree with Bob. I've researched this subject extensively -- at least literature through 1995 -- and can cite more than 10 articles concerning the tissue-toxicity of povidone-iodine solutions, not to mention hydrogen peroxide and Hibiclens.

[Lineaweaver W et al: Arch Surg 120:267]
- More than 10 articles also exist proving the efficacy of vigorous irrigation, including:
  [Stevenson TR et al: JACEP 5:17, 1976]
  [Angeras MH et al: Eur J Surg 158:347, 1992 (this one shows tap water as good as sterile solution)]
- HOWEVER, we don't practice what we preach – see Ann Emerg Med 21:976, 1992
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