SURGICAL EVIDENCE

By
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We present published evidence on surgical practice that does not require specialized training or significant resources for its implementation. Surgeons are advised to read the full text of the evidence before following the study conclusions.

Water for wound cleansing

Fernandez R, Griffiths R.
Cochrane Database Syst Rev. 2008 Jan 23;(1):CD003861.

Background: Various solutions have been recommended for cleansing wounds, however normal saline is favoured as it is an isotonic solution and does not interfere with the normal healing process. Tap water is commonly used in the community for cleansing wounds because it is easily accessible, efficient and cost effective, however, there is an unresolved debate about its use.
Objectives: The objective of this review was to assess the effects of water compared with other solutions for wound cleansing.
Search Strategy: Randomised and quasi-randomised controlled trials were identified by electronic searches of Cochrane Wounds Group Specialised Register (June 2007), MEDLINE (1996-2007), EMBASE (1980-2007), CINAHL (1982-2007) and the Cochrane Controlled Trials Register (Issue 3; 2007). Primary authors, company representatives and content experts were contacted to identify eligible studies. Reference lists from included trials were also searched.
Selection Criteria: Randomised and quasi randomised controlled trials that compared the use of water with other solutions for wound cleansing were eligible for inclusion. Additional criteria were outcomes that included objective or subjective measures of wound infection or healing.
Data collection and analysis: Trial selection, data extraction and quality assessment were carried out independently by two authors and checked by a third author. Differences in opinion were settled by discussion. Some data were pooled using a random effects model.
Main results: Eleven trials were included in this review. Seven trials were identified that compared rates of infection and healing in wounds cleansed with water and normal saline, three trials compared cleansing with no cleansing and one trial compared procaine spirit with water. There were no standard criteria for assessing wound infection across the trials which limited the ability to pool the data. The major comparisons were water with normal saline, and tap water with no cleansing. For chronic wounds, the relative risk of developing an infection when cleansed with tap water compared with normal saline was 0.16, (95% CI 0.01 to 2.96). Tap water was more effective than saline in reducing the infection rate in adults with acute wounds (RR 0.63, 95% CI 0.40 to 0.99). The use of tap water to cleanse acute wounds in children was not associated with a statistically significant difference in infection when compared to saline (RR 1.07, 95% CI 0.43 to 2.64). No statistically significant differences in infection rates were seen when wounds were cleansed with tap water or not cleansed at all (RR 1.06, 95% CI 0.07 to 16.50). Likewise, there was no difference in the infection rate in episiotomy wounds cleansed with water or procaine spirit. The use of isotonic saline, distilled water and boiled water for cleansing open fractures also did not demonstrate a statistically significant difference in the number of fractures that were infected.

Authors' conclusions: There is no evidence that using tap water to cleanse acute wounds in adults increases infection and some evidence that it reduces it. However there is not strong evidence that cleansing wounds per se increases healing or reduces infection. In the absence of potable tap water, boiled and cooled water as well as distilled water can be used as wound cleansing agents.

Weight lifting in women with breast-cancer-related lymphedema

Schmitz KH, Ahmed RL, Troxel A, Cheville A, Smith R, Lewis-Grant L, Bryan CJ, Williams-Smith CT, Greene QP
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Background: Weight lifting has generally been proscribed for women with breast-cancer-related lymphedema, preventing them from obtaining the well-established health benefits of weight lifting, including increases in bone density.
Methods: We performed a randomized, controlled trial of twice-weekly progressive weight lifting involving 141 breast-cancer survivors with stable lymphedema of the arm. The primary outcome was the change in arm and hand swelling at 1 year, as measured through displaced water volume of the affected and unaffected limbs. Secondary outcomes included the incidence of exacerbations of lymphedema, number and severity of lymphedema symptoms, and muscle strength. Participants were required to wear a well-fitted compression garment while weight lifting.
Results: The proportion of women who had an increase of 5% or more in limb swelling was similar in the weight-lifting group (11%) and the control group (12%) (cumulative incidence ratio, 1.00; 95% confidence interval, 0.88 to 1.13). As compared with the control group, the weight-lifting group had greater improvements in self-reported severity of lymphedema symptoms (P=0.03) and upper- and lower-body strength (P<0.001 for both comparisons) and a lower incidence of lymphedema exacerbations as assessed by a certified lymphedema specialist (14% vs. 29%, P=0.04). There were no serious adverse events related to the intervention.
Conclusions: In breast-cancer survivors with lymphedema, slowly progressive weight lifting had no significant effect on limb swelling and resulted in a decreased incidence of exacerbations of lymphedema, reduced symptoms, and increased strength. (ClinicalTrials.gov number, NCT00194363.) 2009 Massachusetts Medical Society

Perioperative supplemental oxygen therapy and surgical site infection: a meta-analysis of randomized controlled trials

Qadan M, Akça O, Mahid SS, Hornung CA, Polk HC Jr
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Objective: To conduct a meta-analysis of randomized controlled trials in which high inspired oxygen concentrations were compared with standard concentrations to assess the effect on the development of surgical site infections (SSIs).
Data Sources: A systematic literature search was conducted using the MEDLINE, EMBASE, and Cochrane databases and included a manual search of references of original articles, poster presentations, and abstracts from major meetings ("gray" literature).
Study selection: Twenty-one of 2167 articles met the inclusion criteria. Of these, 5 randomized controlled trials (3001 patients) assessed the effect of perioperative supplemental oxygen use on the SSI rate. Studies used a treatment-inspired oxygen concentration of 80%. Maximum follow-up was 30 days.
Data Extraction: Data were abstracted by 3 independent reviewers using a standardized data collection form. Relative risks were reported using a fixed-effects model. Results were subjected to publication bias testing and sensitivity analyses.
Data synthesis: Infection rates were 12.0% in the control group and 9.0% in the hyperoxic group, with relative risk reduction of 25.3% (95% confidence interval [CI], 8.1%-40.1%) and absolute risk reduction of 3.0% (1.1%-5.3%). The overall risk ratio was 0.742 (95% CI, 0.599-0.919; P = .006). The benefit from increasing oxygen concentration was greater in colorectal-specific procedures, with a risk ratio of 0.556 (95% CI, 0.383-0.808; P = .002).
Conclusions: Perioperative supplemental oxygen therapy exerts a significant beneficial effect in the prevention of SSIs. We recommend its use along with maintenance of normothermia, meticulous glycemic control, and preservation of intravascular volume perioperatively in the prevention of SSIs.