Title: The Comparative Infection Rates of Povidone-Iodine and Normal Saline for Post-Operative Wound Cleaning

Date: September 19, 2007

Research question:

1. What are the comparative infection rates of povidone-iodine and normal saline for wound cleaning in post-operative urology or general surgery patients?
2. Do infection rates increase if povidone-iodine is left on the site?

Methods:

A limited literature search was conducted on key health technology assessment resources, including PubMed, the Cochrane Library (Issue 3, 2007), University of York Centre for Reviews and Dissemination (CRD) databases, ECRI, EuroScan, international HTA agencies, and a focused Internet search. Results include articles published between 2001 and the present, and are limited to English language publications only. Internet links are provided, where available.

Results:

Health technology assessments
None found

Systematic reviews
None found

General guidelines and recommendations
None found

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Randomized controlled trials


Many surgeons apply povidone-iodine (PVP-I) to the skin around an incision before closing a wound to reduce wound infection rates. However, the effectiveness of this procedure has not been proven. Forty-seven cases of gastric surgery and 60 cases of colorectal surgery performed at Kanto Medical Center between July 2004 and December 2004 were randomly assigned to the group with PVP-I or the group without PVP-I. Wound infection and surgical site infection (SSI) rates were compared between these two groups. Applying PVP-I was effective in eliminating skin contamination, as cultures became negative in all cases after applying PVP-I. However, this study could not demonstrate the reduction of wound infection or SSI in the group with PVP-I, possibly because the number of cases in this study was too small to make a difference. Subcutaneous tissue contamination was considered a more important factor than skin contamination in causing wound infection.


STUDY DESIGN: Prospective, single-blinded, randomized study. OBJECTIVES: To evaluate the efficacy of dilute betadine irrigation of spinal surgical wounds in prevention of postoperative wound infection. SUMMARY AND BACKGROUND: Deep wound infection is a serious complication of spinal surgery that can jeopardize patient outcomes and increase costs. Povidoneiodine is a widely used antiseptic with bactericidal activity against a wide spectrum of pathogens, including methicillin-resistant Staphylococcus aureus. The aim of this study was to evaluate the efficacy of dilute betadine solution in the prevention of wound infection after spinal surgery. METHODS: Four hundred and fourteen patients undergoing spinal surgery were randomly assigned to two groups. In group 1 (208 patients), surgical wounds were irrigated with dilute betadine solution (3.5% betadine) before wound closure. Betadine irrigation was not used in group 2 (206 patients). Otherwise, perioperative management was the same for both groups. RESULTS: Mean length of follow-up was 15.5 months in both groups (range, 6-24 months). No wound infection occurred in group 1. One superficial infection (0.5%) and six deep infections (2.9%) occurred in group 2. The differences between the deep infection rate (P = 0.0146) and total infection rate (P = 0.0072) were significant between the two groups. CONCLUSIONS: Our report is the first prospective, single-blinded, randomized study to evaluate the clinical effectiveness of dilute betadine solution irrigation for prevention of wound infection following spinal surgery. We recommended this simple and inexpensive measure following spinal surgery, particularly in patients with accidental wound contamination, risk factors for wound infection, or undergoing surgery in the absence of routine ultraviolet light, laminar flow, and isolation suits.
Appendix – Further information:

Additional references
