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The Comparison Between Chlorhexidine and Povidone-Iodine Antiseptics in the Operating Room to Prevent Surgical Site Infections

Eleanor DeCarolis, BSN, RN

Background

Surgical site infections (SSI's) are one of the most common and costly complications from surgery. Chlorhexidine gluconate (CHG) and Povidone-Iodine (PVI) are the most common antiseptics used in surgery. The efficacy and uses of these surgical preps have been studied to determine the most effective in preventing surgical site infections.

Problem

In adult surgical patients, does Chlorhexidine compared to Povidone-Iodine antiseptics impact the occurrence rate of surgical site infections post-operatively.

Review of Literature:

Title: A systematic review and network meta-analysis of chlorhexidine gluconate versus Povidone-iodine for infection prevention in clean surgery

Purpose: To determine the effectiveness of CHG and PVI for skin antiseptics to prevent SSI's in clean surgeries

Method: An electronic database search was done using PubMed and Embase. The PRISMA framework was used for analysis. Data was collected and compared to each other.

Results: Alcohol-based CHG 4%-5% was estimated to be twice as effective as all types of PVI in the prevention of SSI's after clean surgery

Conclusion and Evidence level: In this systematic review and network analysis, there was evidence of a significant decrease in SSI's using CHG compared to PVI. This is a level 1 evidence level

Title: Efficacy of different preoperative skin antiseptics on the incidence of surgical site infections: a systematic review, GRADE assessment, and network meta-analysis

Purpose: To compare the efficacy of different skin preparation solutions and concentrations for the prevention of SSI's, and to provide an overview of current guidelines

Method: This systematic review searched for randomized controlled trials in MEDLINE, Embase, and Cochrane central that directly compared two or more antiseptic agents.

Results: Multiple studies including 17,735 patients, concluded that 2%-2.5% CHG with alcohol was most effective, but they didn't find any significant difference between concentrations of CHG.

Conclusion and Evidence level: In this systematic review there was sufficient results to show that CHG was most effective in preventing SSI's. This is a level 1 evidence level.

Title: The Comparative Efficacy of Chlorhexidine Gluconate and Povidone-iodine Antiseptics for the prevention of Infection in Clean Surgery: A Systematic Review and Network Meta-analysis

Purpose: To provide a more precise estimate to rank interventions by efficacy to help make clinical decisions.

Method: A search was made for randomized or nonrandomized studies comparing surgical preps for SSI's in clean surgery. Then a meta-analysis was performed to evaluate the results.

Results: 17 studies comparing 14,593 patients had a 3% infection rate and alcoholic CHG was found to be the most effective. CHG halved the risk of SSI's in clean surgery

Conclusion and Evidence

level: This systematic review concludes that 4%-5% CHG was found to be twice as effective compared to PVI and endorses worldwide guidelines. This is a level 1 evidence level.

Next Steps

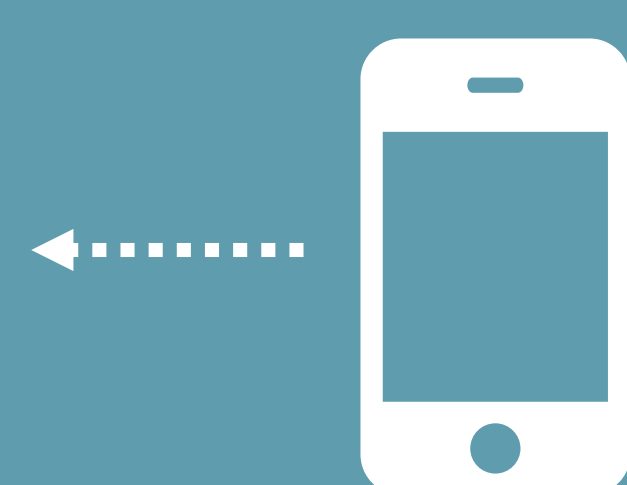
The next step is to continue following the accepted guidelines to continue using Chlorhexidine prep in clean surgery and to continue studying the benefits and efficacy throughout time.

References

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