

Prevention of post-operative wound infection (query bank)

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Question: To reduce the risk of post operative wound infection, what is the recommended cleaning solution to be used prior to laparotomy and Caesarean section, and is wound cleaning with either solution recommended prior to skin closure at the end of surgery?

Answer: This clinical query answer was produced by RCOG Library staff following the clinical query protocol.

Preoperative

The Society for Healthcare Epidemiology of America published a guideline on strategies to prevent surgical site infections (SSI) in acute care hospitals in 2014. (Anderson) This recommends: "Use alcohol-containing preoperative skin preparatory agents if no contraindication exists.... Alcohol is highly bactericidal and effective for preoperative skin antisepsis but does not have persistent activity when used alone. Rapid, persistent, and cumulative antisepsis can be achieved by combining alcohol with chlorhexidine gluconate or an iodophor... The most effective disinfectant to combine with alcohol is unclear."

A Cochrane review of skin antiseptics (Dumville) found some evidence that preoperative skin preparation with 0.5% chlorhexidine in methylated spirits was associated with lower rates of SSIs following clean surgery than alcohol-based povidone iodine paint. The authors noted that this single study was poorly reported, and practitioners may therefore elect to consider other characteristics such as costs and potential side effects when choosing between alternatives.

A review specifically relating to caesarean sections (Hadiati) concluded it is not yet clear what sort of skin preparation may be most efficient for preventing postcaesarean wound and SSI. (Evidence level Ia)

Intraoperative

Meta-analysis on the effect of intra-operative wound irrigation (IOWI) with any solution compared to no irrigation revealed a significant benefit in the reduction of SSI rates after abdominal surgery (OR = 0.54, 95 % confidence Interval (CI) [0.42; 0.69], $p < 0.0001$). (Mueller). Subgroup analyses showed that this effect was strongest in colorectal surgery and that IOWI with antibiotic solutions had a stronger effect than irrigation with PVP-I or saline. However, all of the included trials were at considerable risk of bias according to the quality assessment. (Evidence level Ia)

References

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