Intra-operative wound irrigation to reduce surgical site infections after abdominal surgery: a systematic review and meta-analysis.

Surgical site infection (SSI) remains to be one of the most frequent infectious complications following abdominal surgery. Prophylactic intra-operative wound irrigation (IOWI) before skin closure has been proposed to reduce bacterial wound contamination and the risk of SSI. However, current recommendations on its use are conflicting especially concerning antibiotic and antiseptic solutions because of their potential tissue toxicity and enhancement of bacterial drug resistances. To analyze the existing evidence for the effect of IOWI with topical antibiotics, povidone-iodine (PVP-I) solutions or saline on the incidence of SSI following open abdominal surgery, a systematic review and meta-analysis of randomized controlled trials (RCTs) was carried out according to the recommendations of the Cochrane Collaboration. Forty-one RCTs reporting primary data of over 9000 patients were analyzed. Meta-analysis on the effect of IOWI with any solution compared to no irrigation revealed a significant benefit in the reduction of SSI rates (OR = 0.54, 95% confidence Interval [CI] [0.42; 0.69], p< 0.0001). 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. These results suggest that IOWI before skin closure represents a pragmatic and economical approach to reduce postoperative SSI after abdominal surgery and that antibiotic solutions seem to be more effective than PVP-I solutions or simple saline, and it might be worth to re-evaluate their use for specific indications.

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