The Efficacy of Topical Vancomycin in Reducing Surgical Site Infections in Spine Surgery: A Meta-analysis of Randomized Controlled Trials

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INTRODUCTION:

Surgical site infections (SSIs) represent a major challenge in spine surgery, leading to severe morbidity, mortality, and increased costs. Despite the implementation of systemic antibiotic therapy and sterile surgical practices to reduce SSIs, their persistence underscores the need for innovative prophylactic methods. The local application of antibiotics, particularly vancomycin, has emerged as a potential strategy. This meta-analysis investigates the impact of topical vancomycin in spinal surgeries to enhance prophylactic approaches against SSIs, aiming to improve patient outcomes and reduce healthcare costs.

METHODS:

PubMed, Cochrane, and Google Scholar (Pages 1-20) were searched up until March 2024. The studied outcomes were SSIs rates, DSSIs rates, and SSSIs rates.

RESULTS:

Six randomized controlled trials representing a total of 2140 patients, with 1053 in the vancomycin group and 1087 in the control group. No statistically significant difference in the rate of SSIs was observed between the vancomycin group and the control group (p=0.42). Similar results were shown when analyzing by instrumentation status (instrumented (p=0.47), non-instrumented (p=0.06)) and depth of infection (DSSI (p=0.49), SSSI (p=0.46)).

DISCUSSION AND CONCLUSION: In this meta-analysis of randomized trials topical vancomycin did not show a statistically significant reduction in the incidence of SSIs, DSSIs, and SSSIs in spinal surgeries. Vancomycin utilization remains commonplace due to low cost, minimal risk of complications, as well as numerous non-randomized studies showing efficacy in decreasing infection rates. Further studies are needed to investigate infection control measures in spine surgery including topical antibiotic utilization.

