Role of Antibiotic Irrigation in Preventing Capsular Contracture and Other Complication After Breast Augmentation: A Systematic Review and Meta-analysis.

Osama A. Samargandi, MD, MHSc; Nadim Joukhdar, BSc; Omar M. Shaikh, BHSc; Sarah Al Youha, MD, PhD; Jason Williams, MD, MEd

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INTRODUCTION: In vitro and in vivo studies have described a number of different antibiotic solutions for irrigation of the pocket in implant-based breast augmentation in order to prevent the formation of biofilm, which is implicated in capsular contracture development[1-3]. Our objective was to determine if antibiotic irrigation reduced the rate of capsular contracture compared with saline irrigation.

METHODS: We systematically searched MEDLINE, EMBASE and CENTRAL from inception to January 2016 by two independent reviewers. We included in vivo studies with the following criteria (1) primary breast augmentation with implants in female 18 years old or more; (2) the use of intraoperative irrigation with antibiotic; and (3) documentation of capsular contracture. Our primary outcome was postoperative rate of severe capsular contracture (Baker III and IV). We assessed the methodologic quality of included studies using validated tools (JADAD and MINORS). Pooled random effects estimates and 95% confidence intervals (CI) for complication and capsular contracture rates were derived. Comparisons were performed for breast augmentation with or without the use of intraoperative antibiotic irrigation using a pooled odds ratio and 95% CI.

RESULTS: The initial search revealed 308 studies. After screening the title and abstract, 293 articles were excluded. A total of 12 studies were included in the review. The most common antibiotics used alone or within mix of solution were gentamicin, and bacitracin. The triple antibiotic solution were used in three studies. In 12 studies, the pooled estimates were 2.5% (95% CI, 1.2 - 4.2%) for capsular contracture, 4.8% (95% CI, 0.9-11.6%) for reoperation rate, 1.4% (95% CI, 0.5-2.8%) for infection, 2.4% (95% CI, 0.8-4.7%) for seroma and 1.5% (95% CI, 1.2-2.0%) for hematoma. The fixed effect pooled OR of four comparative observational studies was 0.33 (95% CI: 0.19, 0.57) indicating a protective effect for intraoperative antibiotic irrigation over the saline only control. The methodological quality of the included studies was overall low. There was no attempt to stratify or adjust for potential influential confounding factors.

CONCLUSION: The current evidence favors the instillation of antibiotic irrigation solution in primary breast augmentation. However, this conclusion is hindered by the fact that it is based predominantly on studies that are retrospective with several methodological flaws. This analysis illustrates the need for better designed studies to definitively answer the question.

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