

Efficacy of Mitomycin C for postoperative endoscopic sinus surgery: a systematic review and meta-analysis

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Abstract

Background: Mitomycin C has recently been used to prevent nasal synechiae and sinus ostium stenosis after endoscopic sinus surgery.

Objective of review: To compare nasal synechiae rate between topical Mitomycin C and saline or no treatment.

Type of review: Systematic review and meta-analysis.

Data sources: MEDLINE, SCOPUS, and Cochrane Register of Controlled Trials databases were used to identify studies up to January 2013.

Evaluation method: Data were independently extracted by two reviewers (PN and KT). Studies which compared topical Mitomycin C with control where the outcomes of interest were nasal synechiae or sinus ostium stenosis were included. Baseline study characteristics, quality of study, numbers of patients between treatment and control groups, outcomes, and adverse events were extracted. A multivariate meta-analysis was separately applied for each outcome (nasal synechiae and maxillary sinus ostium stenosis).

Results: Among 11 included studies, most studies used Mitomycin C dose of 0.4–0.5 mg/mL 1–5 mL in the middle meatus for 5 min duration. Eight studies reported synechiae with 281 and 281 nasal cavities received Mitomycin C and saline, respectively. For outcome of nasal synechiae, a multivariate meta-analysis suggested that Mitomycin C was associated with a 66% (RR = 0.34, 95% CI: 0.18–0.65) lower risk of nasal synechiae with moderate heterogeneity ($I^2 = 43%$, 95% CI: 0–77%). Subgroup analyses by age and history of revision could reduce the degree of heterogeneity. Mitomycin C benefits were found in subgroups of age ≤ 40 years (RR = 0.27, 95% CI: 0.05–1.50) and patients without any history of revision (RR = 0.19, 95% CI: 0.06–0.58). Five studies with 134 and 140 nasal cavities for Mitomycin C and saline were included in pooling of maxillary sinus ostium stenosis. Mitomycin C was associated with 74% (RR = 0.26, 95% CI: 0.12–0.54) lower risk of maxillary sinus ostium stenosis when compared with saline with low heterogeneity ($I^2 = 5%$, 95% CI: 0–85%). There was no evidence of publication bias for both poolings.



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Conclusion: Applying Mitomycin C topically after endoscopic sinus surgery could reduce the risk of nasal synechiae and maxillary sinus ostium stenosis in short term by 66% and 74% , respectively. The treatment effects may be more beneficial in patients aged 40 years or younger or in patients without history of revision. However, our results were based on pooling trials with questionable methodological quality. Further trials with good research methodology and long-term follow-up should be conducted to confirm our results.

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