

Corticosteroid nasal irrigations after endoscopic sinus surgery in the management of chronic rhinosinusitis

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Background: Inflammatory dysfunction is considered an important part of chronic rhinosinusitis (CRS). Corticosteroid therapy has been widely used in CRS. Effective topical delivery has been previously problematic. The post-endoscopic sinus surgery (ESS) corridor is essential for adequate topical drug access. Devices delivering large volume with positive pressure allow better distribution to sinus mucosa. The objective of this study is to evaluate the efficacy of postoperative topical sinonasal steroid irrigations for CRS.

Methods: Patients with CRS undergoing ESS after failing previous medical therapy were recruited. Structured histopathology including markers of eosinophilia was performed. After surgery, patients received either budesonide 1 mg or betamethasone 1 mg delivered in a 240-mL squeeze bottle daily. Outcomes of the symptom score, Sino-Nasal Outcome Test 22 (SNOT-22) score, and endoscopy score were recorded.

Results: A total of 111 patients (mean 50.1 ± 13.5 standard deviation [SD] years, 40.5% female) were included. Mean follow-up was 55.5 ± 33.9 weeks. Baseline and post-treatment symptom scores (2.6 ± 1.1 vs 1.2 ± 1.0), SNOT-22 scores (2.2 ± 1.1 vs 1.0 ± 0.8), and endoscopy scores

(6.7 ± 3.0 vs 2.5 ± 2.0) revealed significant improvement (all, $p < 0.001$). Contrary to previous publications, patients with high tissue eosinophilia (>10 /high power field [HPF]) had significantly more improvement on symptom score (1.9 ± 1.4 vs 1.1 ± 1.0 , $p = 0.04$), SNOT-22 score (1.6 ± 1.3 vs 1.0 ± 0.8 , $p = 0.03$), and endoscopy score (5.12 ± 3.4 vs 3.06 ± 3.0 , $p = 0.01$) than those without.

Conclusion: The philosophical approach to ESS in CRS is evolving. Topical therapies, when used appropriately, are highly effective for the most challenging eosinophilic patients. Although corticosteroid is a nonspecific therapy, it is effective when appropriately delivered. © 2012 ARS-AAOA, LLC.

Key Words: chronic rhinosinusitis; corticosteroid; irrigations; endoscopic sinus surgery; budesonide; betamethasone; eosinophilic

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Inflammatory dysfunction is considered an important part of chronic rhinosinusitis (CRS). Topical steroid is currently used for treatments of CRS, both chronic rhinosinusitis without polyps (CRSsNP) and chronic rhinosinusitis with polyps (CRSwNP). The mechanism of corticosteroids combines suppression of gene transcription suppression for proinflammatory products and reduction of inflammatory cell migration, cell chemotactic factors, and adhesion molecules.¹ Recent meta-analyses reveal that topical steroid is effective for sinonasal symptoms for patients with CRSsNP,² decreases polyp size,^{3,4} and prevents polyp recurrence in CRSwNP³ but the influence of delivery and sinus surgery are important factors in effectiveness.

Delivery techniques, surgical state of the sinus cavity, delivery device, and fluid dynamics have a significant impact on the distribution of topical therapies to the sinus mucosa.⁵ Delivery devices for topical steroid