



Q/ Intranasal steroids vs antihistamines: Which is better for seasonal allergies and conjunctivitis?

EVIDENCE-BASED ANSWER

A/ INTRANASAL STEROIDS PROVIDE BETTER RELIEF for adult sufferers, according to nonstandardized, non-clinically validated scales. Steroids reduce subjective total nasal symptom scores (TNSS)—representing sneezing, itching, congestion, and rhinorrhea—by about 25% more than placebo, whereas oral antihistamines decrease TNSS by 5% to 10%

(strength of recommendation [SOR]: **B**, systematic review of randomized controlled trials [RCTs], most without clinically validated or standardized outcome measures).

Intranasal steroids improve subjective eye symptom scores as well as (or better than) oral antihistamines in adults who also have allergic conjunctivitis (SOR: **A**, systematic review, RCTs).

Evidence summary

The most commonly measured outcomes in allergic rhinitis and conjunctivitis trials are symptom scales, which are neither standardized nor clinically validated. Almost all the studies discussed here calculated outcomes as a percentage change from baseline symptom scores but didn't provide absolute values, so it isn't clear whether statistical differences are clinically relevant.

Steroids provide more relief of nasal symptoms

A meta-analysis of 21 randomized placebo-controlled trials (total 2821 patients, average age mid-30s) that compared changes in TNSS with intranasal steroids and oral antihistamines among adults with seasonal allergic rhinitis found that steroids reduced TNSS more than antihistamines.¹ Most of the patients had had moderate to severe symptoms for several years.

Investigators calculated percent changes from baseline in mean TNSS, which typically

included sneezing, itching, congestion, and rhinorrhea, each usually scored on a scale of 0 to 3.¹ Individual RCTs compared one of 3 intranasal steroids (fluticasone, triamcinolone, or budesonide) and one of 3 oral antihistamines (cetirizine, loratadine, or fexofenadine) with placebo; no studies compared medications within classes against each other.¹

On individual symptom scores, intranasal steroids reduced sneezing, itching, congestion, and rhinorrhea more than placebo by more than 20%. Both intranasal steroids and oral antihistamines decreased itching and rhinorrhea a similar amount, but antihistamines reduced congestion by only 5% to 10% more than placebo.¹

This meta-analysis included only studies reporting TNSS as an outcome, and individual studies used varying TNSS scales. Investigators attributed heterogeneity in the studies to intraclass differences between medications.¹

Two drug company-sponsored RCTs (1616 patients combined, average age 30s, moderate to severe allergic rhinitis) pub-

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TABLE 1

Intranasal steroids vs oral antihistamines for nasal symptom relief

Study design	Intervention	Outcome	Significance	Harms
Systematic review of RCTs ¹	INS: 7 RCTs (total N=597) OAH: 14 RCTs (total N=2224)	Mean percentage change in TNSS from baseline: INS: -40.7% OAH: -23.5% Placebo: -15.0%	Changes in INS scores significantly greater than changes in OAH scores ($P<.001$)	Not reported
Two RCTs, double blind, double dummy ²	<i>Study 1*</i> INS (N=312) OAH (N=311) Placebo (N=313) <i>Study 2*</i> INS (N=224) OAH (N=227) Placebo (N=229) Duration 2 wk	Least squares mean difference from baseline TNSS score of INS vs OAH: <i>Study 1:</i> TNSS: -1.0 (95% CI, -0.7 to -1.4) <i>Study 2:</i> TNSS: -1.3 (95% CI, -0.9 to -1.7)	Changes in INS scores significantly greater than changes in OAH scores ($P<.001$)	INS: sore throat (2%), urticaria (<1%) OAH: epistaxis (2%), sore throat (<1%), cholecystitis (<1%), upper respiratory infection (<1%), sinusitis (<1%)

CI, confidence interval; INS, inhaled nasal steroids; OAH, oral antihistamine; RCTs, randomized controlled trials; TNSS, total nasal symptom score.

*The INS used was fluticasone furoate; the OAH used was fexofenadine.

lished before the meta-analysis also demonstrated that the intranasal steroid fluticasone propionate modestly reduced TNSS compared with the oral antihistamine fexofenadine (1 point vs 1.3 on a scale of 0 to 12).² **TABLE 1** summarizes the results of studies comparing intranasal steroids and oral antihistamines to reduce nasal symptoms.

Results for eye symptoms are mixed

A meta-analysis of 11 RCTs (1317 patients, average age 32) showed no significant difference in relief of eye symptoms between oral antihistamines (dexchlorpheniramine, terfenadine, and loratadine) and intranasal steroids (budesonide, beclomethasone, fluticasone, and triamcinolone) in patients with seasonal allergies, as measured by various symptom scores.³

Three other studies indicated that intranasal steroids (triamcinolone, fluticasone) relieved eye symptoms more effectively than oral antihistamines (loratadine, fexofenadine) based on mean reductions in TNSS, Rhinoconjunctivitis Quality of Life Questionnaire (RQLQ), and Total Ocular Symptom

Score (TOSS).⁴⁻⁶ Of these scoring systems, only the RQLQ has been clinically validated.⁷

One additional study (including 2 RCTs) showed conflicting results.² **TABLE 2** summarizes the results of studies comparing intranasal steroids and oral antihistamines to relieve eye symptoms.

Antihistamines cost less than steroids and are available OTC

Oral antihistamines are less expensive than intranasal steroids and are available over the counter. The cost of antihistamines ranges from \$5.70 to \$21.99 for a month of treatment, whereas the cost of intranasal steroids for the same period varies from \$60.99 to \$149.99.⁸

In the studies reviewed here, the 2 interventions showed similar harms, including sore throat, epistaxis, and headache.^{2,4-6}

Recommendations

The American Academy of Allergy, Asthma and Immunology's 2010 guidelines conclude that intranasal steroids are first-line treatment for allergic rhinitis. If the patient prefers, use oral antihistamines.⁹

TABLE 2

How intranasal steroids compare with oral antihistamines for reducing eye symptoms

Study design	Intervention	Outcome	Significance	Harms
Systematic review ³	INS vs OAH 11 RCTs reporting ocular symptoms, N=1317	OR for deterioration or no change of varied scoring systems: -0.043 (CI, -0.157 to 0.072)	No significant difference between INS and OAH scores	Not reported
RCT, double blind, double dummy ⁵	INS (triamcinolone acetonide), N=153 OAH (loratadine), N=152	Percent reduction from mean baseline TNS ocular score: INS: 59% OAH: 48% Total TNS ocular score: 3	Changes in INS scores significantly greater than changes in OAH scores ($P<.05$)	INS: headache (22%), anxiety (<1%), epistaxis (<1%) OAH: headache (18%), increase in rhinitis symptoms (2%), conjunctivitis (<1%)
RCT, double blind, double dummy ⁴	INS (fluticasone propionate), N=150 OAH (loratadine), N=150 INS+OAH, N=150 Placebo, N=150 Duration 2 wk	Mean change in RQLQ ocular score from baseline: INS: -1.9 OAH: -1.3 Total RQLQ ocular score: 6	Changes in INS scores significantly greater than changes in OAH scores ($P<.05$; 0.5 change in score is clinically significant)	INS and OAH: blood in mucus (1%-2%), xerostomia (1%-2%), epistaxis (<1%)
RCT, double blind, double dummy ⁶	INS (fluticasone propionate), N=158 OAH (loratadine), N=158 Placebo, N=155 Duration 4 wk	Mean change in TOSS score from baseline: INS: -88.7±5.3 OAH: 72.5±5.4 Total TOSS score: 100	Changes in INS scores significantly greater than changes in OAH scores ($P<.045$)	INS: headache (17%) OAH: headache (18%)
Two RCTs, double blind, double dummy ²	<i>Study 1:</i> INS (fluticasone furoate), N=312 OAH (fexofenadine), N=311 <i>Study 2:</i> INS (fluticasone furoate), N=224 OAH (fexofenadine), N=227 Duration 2 wk	Least squares mean difference from baseline TOSS2 score: <i>Study 1:</i> TOSS2: -0.3 (95% CI, -0.6 to 0.0; $P<.106$) <i>Study 2:</i> TOSS2: -0.6 (95% CI, -0.9 to -0.2; $P=.002$) Total TOSS2 score: 9	Changes in INS scores significantly greater than changes in OAH scores for Study 2 ($P=.002$) but not for Study 1 ($P<.106$)	INS: sore throat (2%), urticaria (<1%) OAH: epistaxis (2%), sore throat (<1%), cholecystitis (<1%), upper respiratory infection (<1%), sinusitis (<1%)

CI, confidence interval; INS, intranasal steroids; OAH, oral antihistamines; OR, odds ratio; RCT, randomized controlled trial; RQLQ, rhinoconjunctivitis quality of life questionnaire; TNS, total nasal score; TNSS, total nasal symptom score; TOSS, total ocular symptom score; TOSS2, (variation of) total ocular symptom score.

The Joint Task Force on Practice Parameters for Allergy and Immunology also recommends intranasal steroids as the most effective medication class for treating allergic rhinitis; no drug within the class is preferable to another. Daily administration is more effective than administration as needed, although the latter

is an option. For treating ocular symptoms, intranasal corticosteroids and oral antihistamines work equally well.¹⁰

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CONTINUED ON PAGE 448

CONTINUED FROM PAGE 431

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