Efficacy of intranasal corticosteroids for the ocular symptoms of allergic rhinitis: a systematic review

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CRD summary
The review found that intranasal corticosteroids had a positive impact on the eye symptoms of allergic rhinitis. Methodological limitations in the review, the limited synthesis undertaken and seemingly contradictory results from different subgroups of included trials cast doubt on the reliability of the authors' conclusions.

Authors' objectives
To assess the validity of clinical trials evaluating the efficacy of intranasal corticosteroids for ocular (eye) symptoms of allergic rhinitis.

Searching
PubMed and EMBASE were searched for relevant studies published since 1973 in English; search terms were reported. Reference lists of retrieved studies were searched.

Study selection
Eligible studies were blinded randomised controlled trials (RCTs) that compared intranasal corticosteroids with placebo or active agents for seasonal and/or perennial allergic rhinitis (without concomitant diagnoses). Eligible trials were required to be challenge studies using a pollen count and had to assess total and/or individual ocular symptoms separately. Retrospective analyses of RCTs were included.

In the included trials, participants were children, adolescents, adults or mixed age groups. Interventions included beclomethasone dipropionate, budesonide, ciclesonide, flunisolide, fluticasone furoate, fluticasone propionate, mometasone furoate and triamcinolone acetonide. Controls included placebo or other active drugs such as antihistamines. Included trials compared either monotherapy or combination therapy. Included trials assessed the effect of treatment on combined total eye symptom scores and individual eye symptoms, only total eye symptom scores, or only individual eye symptoms. A few trials allowed rescue medication.

One reviewer selected studies for the review.

Assessment of study quality
Trials were assessed for quality using a modified 11-item Jadad scale with a maximum score of 13 points. Criteria assessed included randomisation, blinding, description of withdrawals and dropouts, clearly defined inclusion and exclusion criteria, and methods for describing adverse events.


Data extraction
Data were extracted on mean differences in Jadad scores between reviewers and the proportion of trials in each subgroup that reported significant effects of intranasal corticosteroids on eye symptoms.

The authors did not state how many reviewers extracted the data.

Methods of synthesis
Inter-rater reliability of the modified Jadad scale was performed by analyses of variance of the mean Jadad scores between three reviewers overall and separately in studies published before 2009 and from 2009. Meta-analyses were undertaken to estimate overall weighted or standardised mean Jadad scores for all studies and separately in the three subgroups: trials that reported combined total eye symptom scores and individual eye symptoms, trials that reported total eye symptom scores alone; and trials that reported individual eye symptoms alone. The proportion of trials that
reported significant effects of intranasal corticosteroids on trial outcomes was reported in text format. Differences between trials were evident from the tables. No other details on analysis were reported.

**Results of the review**

Thirty-two trials (n=8,434 participants, range 20 to 1,616) were included in the review. Mean Jadad scores ranged from 5 to 11.3 out of a maximum of 13 points. The weighted mean Jadad score for all trials was 9.29 (95% CI 8.7 to 9.88). The weighted mean Jadad score was 10.17 (95% CI 9.34 to 11; 10 trials) in the subgroup of trials that reported on combined total eye symptom scores and individual eye symptoms, 10.09 (95% CI 9.55 to 10.63; nine trials) in the subgroup that reported total eye symptoms alone, and 8.56 (95% CI 7.66 to 9.46; 13 trials) in the subgroup that reported on individual eye symptoms alone.

**Combined total eye symptom scores and individual eye symptoms subgroup** (10 trials): Compared with control, nine of the ten trials reported statistical improvement in total eye symptom scores and individual eye symptoms.

**Total eye symptoms alone subgroup** (13 trials): Compared with control, five of 13 trials reported statistical improvement in total eye symptoms.

**Individual eye symptoms alone subgroup** (nine trials): Three of nine trials reported statistical improvement in objective outcomes such as conjunctival redness and oedema when intranasal corticosteroids were compared with placebo, but not in subjective outcomes.

**Authors' conclusions**

Intranasal corticosteroids had a positive impact on the eye symptoms of allergic rhinitis.

**CRD commentary**

The objective of the review was to assess the validity of all trials that compared intranasal corticosteroids with placebo or active treatment for allergic rhinitis to make conclusions on the efficacy of intranasal corticosteroids. Broad inclusion criteria were appropriate for efficacy assessment, although a discrepancy was identified; inclusion criteria specified that only blinded trials would be included, but text in the discussion noted that unblinded studies were included. Limited searching was undertaken with restriction to studies published in the English language, so language and publication bias could not be ruled out. Methods for the selection of studies and data extraction were either inadequate or not reported, so reviewer bias and error could not be excluded.

Trials were assessed for quality using an appropriate tool by multiple reviewers; inter-rater reliability was assessed using analysis of overall variance and that in subgroups. The synthesis of trials in a narrative format, by counting the proportion of trials that reported significant effects, was appropriate but inadequate because of the wide variation in participants, interventions, control groups and outcomes. Without further synthesis, it was difficult to interpret the findings.

Methodological limitations in the review, the limited synthesis undertaken and seemingly contradictory results from different subgroups of trials cast doubt on the reliability of the authors' conclusions.

**Implications of the review for practice and research**

**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that prospective blinded RCTs were needed of intranasal corticosteroids in the treatment of ocular symptoms of allergic rhinitis, with a threshold level of ocular symptomatology as an inclusion criterion. Trials should report individual and composite total ocular symptoms, and should not include rescue medication. The authors also stated that direct comparisons between different agents are needed.

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**Bibliographic details**

Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.