Are intranasal corticosteroids all equally consistent in managing ocular symptoms of seasonal allergic rhinitis?

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CRD summary
This review suggested that not all intranasal corticosteroids were equally consistent in managing the ocular symptoms of seasonal allergic rhinitis; fluticasone furoate was the most consistent. The authors' cautious conclusion appeared appropriate given the limitations and inconsistency of data; the risk of missing studies and potential limitations of the review methodology needed to be considered.

Authors' objectives
To determine the consistency of effects for intranasal corticosteroids in managing ocular symptoms of seasonal allergic rhinitis.

Searching
MEDLINE and EMBASE were searched between 1990 and May 2009 for published peer-reviewed papers. Search terms were reported. Further studies were sought by screening reference lists of review articles and searching data from governmental and regulatory institutions and conference proceedings.

Study selection
Placebo-controlled randomised controlled trials (RCTs) that assessed the ocular efficacy of intranasal corticosteroids in patients with seasonal allergic rhinitis were eligible for inclusion in the review. Ocular efficacy could be assessed as a primary or secondary outcome or as part of a non-nasal symptom score (which included three ocular symptoms such as eye itching, eye tearing, eye redness and ear/palate itching). Eligible intranasal corticosteroids were beclomethasone dipropionate, budesonide, ciclesonide, flunisolide, fluticasone furoate, fluticasone propionate, mometasone furoate and triamcinolone acetonide.

Ten of the included studies compared intranasal corticosteroids to placebo and also included an active comparator arm (another intranasal corticosteroid or antihistamine). Included patients included both males and females with mild to severe seasonal allergic rhinitis at baseline. Seasonal allergic rhinitis was due to various allergens (such as birch, ragweed, grass and mountain cedar pollen). Most participants were aged 12 years and over (minimum age for inclusion was six years). Study duration was at least two weeks (range one treatment to six weeks). Reported outcomes included total ocular symptom scores (TOSS), instantaneous TOSS (iTOSS), reflective TOSS (rTOSS) and non-nasal symptom scores (eye and ear related) measured using either a four-point categorical scale or 100-point or seven-point visual analogue scale. Eye-related symptoms (included itching, burning, irritation, tearing, watering, redness and puffiness) were usually assessed by physicians or patients using diary cards. Where reported, studies were typically multicentre and based in USA, Canada, Italy, UK, Denmark, France, Sweden and Norway.

The authors did not state how papers were selected for the review.

Assessment of study quality
The authors did not state that they assessed validity. Study blinding was reported.

Data extraction
Studies were reported as positive for the intranasal corticosteroids if ocular symptoms/scores/measures were statistically improved for the intervention compared with placebo. Where outcomes were significantly worse or not significantly different from placebo the studies were reported as being negative (worse) or inconclusive (no difference).

The authors did not state how data were extracted for the review.
Methods of synthesis
Studies were grouped according to intranasal corticosteroids used. The main findings were described in a narrative summary and included effect sizes and significance (p value), where available.

Results of the review
Thirty-five randomised placebo controlled trials that reported a total of 38 comparisons (n=14,608, range 60 to 936) were included in the review. All studies except one were double-blinded.

Inconsistent or negative effects were reported for mometasone furoate (11 RCTs), fluticasone propionate (10 RCTs), budesonide (six RCTs), triamcinolone acetonide (two RCTs), beclomethasone dipropionate (two RCTs) and ciclesonide (one RCT).

Only fluticasone furoate demonstrated a positive effect on ocular outcomes (six RCTs). Results were consistent across different allergy seasons (2003 to 2007), allergens (grass, ragweed, mountain cedar) and geographical locations across Europe and USA.

Authors' conclusions
Available data appeared to suggest that not all intranasal corticosteroids were equally consistent in managing the ocular symptoms of seasonal allergic rhinitis and that fluticasone furoate was the most consistent.

CRD commentary
This review answered a clearly defined research question. There was a risk of publication bias due to the inclusion of only peer-reviewed publications, although unpublished data were sought from conference proceedings and other grey literature sources. The risk of reviewer error and bias was unclear as the authors did not report how studies were selected for inclusion and how data were extracted.

There was no assessment of the risk of bias within studies, so data reliability was unclear. Use of a narrative summary was appropriate due to variation between studies in terms of patients, interventions and outcomes. The authors discussed a number of other potential limitations.

Overall, the authors' cautious conclusion appeared appropriate given the limitations and inconsistency of the data; the risk of missing studies and potential limitations of the review methodology need to be considered.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that further and more rigorous prospective head-to-head trials were required to assess the effectiveness of intranasal corticosteroids for the treatment of ocular effects of seasonal allergic rhinitis. Studies defined as rigorous should include features such as a minimum ocular symptom score and the prospective assessment of total ocular symptom scores.

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