Using nasal steroids to treat nasal obstruction caused by adenoid hypertrophy: does it work
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CRD summary
The authors concluded that nasal steroids were well tolerated and produced improvements in symptoms of nasal airway obstruction in children. This was a reasonably well-conducted review, but potential for language and publication biases and the inclusion of only a small number of good-quality trials, means that some caution is warranted when interpreting the reliability of the authors' conclusions.

Authors' objectives
To evaluate the effectiveness of nasal steroids to improve symptoms of nasal airway obstruction in children with adenoidal hypertrophy.

Searching
MEDLINE (1966 to April 2008), EMBASE (1974 to April 2008) and Cochrane Central Register of Controlled Trials (CENTRAL) (Cochrane Library, Issue 3, 2008) were searched to identify English-language studies for inclusion in the review. Searches were updated in August 2008. Search terms were reported. Reference lists from retrieved papers and reviews were scanned for additional articles of relevance.

Study selection
Randomised controlled trials (RCTs), comparative studies (historical and/or non-randomised), observational studies, case series and case reports of children with adenoid hypertrophy and symptoms of nasal obstruction and who used nasal steroids as sole or adjuvant treatment were eligible for inclusion in the review. The primary outcome of interest was improvement in symptoms of nasal obstruction. Secondary outcomes included reduction in adenoid size and adverse events. Over half of the included studies included children with a history of allergic rhinitis. Ages ranged from three to 15 years. The included nasal steroids were mometasone, flunisolide and beclomethasone delivered in various doses and frequencies. Control groups received no treatment (or stages of treatment that involved saline spray/drops or placebo) and mometasone or beclomethasone. Treatment duration ranged from one month to 31 months. Various outcome measures were used; these included clinical symptom scoring, fiber-optic endoscopic photo assessment of adenoid size, nasal obstructive index, X-ray and a visual analogue symptom scale.

Two independent reviewers selected studies for inclusion in the review.

Assessment of study quality
Trial quality was assessed using the Jadad scale (maximum score of 5) on aspects of randomisation, blinding, allocation concealment and withdrawals. Drug compliance was also assessed.

The authors did not state how many reviewers performed validity assessment.

Data extraction
Two reviewers independently extracted data from the studies. Data extracted included percentage reductions in symptoms and adenoid size. Authors were contacted for additional data, where necessary.

Methods of synthesis
Studies were synthesised narratively, and the results were grouped according the primary and secondary outcomes of interest. Differences between studies were presented in a table.

Results of the review
Seven studies (n=486) were included in the review: six RCTs (n=464) and one cohort study (n=22). Jadad score was 4 in three trials, 2 in one trial and 1 in two trials. Five studies did not describe method of randomisation and did not
demonstrate adequate allocation concealment. Drug compliance was assessed adequately in one trial.

Four of the five RCTs that evaluated the effect of nasal steroids on symptoms of nasal obstruction (n=286) reported statistically significant reductions in treatment groups (range 0.97% to 50%, p<0.05) when compared to control groups. In the cohort study (n=22), which provided long-term follow up from one of the RCTs, mean symptom scores were reduced from two to zero in children who maintained therapy and were significantly increased from 1.5 to eight in those that discontinued therapy early (p<0.001).

Five RCTs evaluated the effect of nasal steroids on adenoid size (n=411), four of which reported statistically significant reductions in treatment groups (range 0.89% to 50%, p<0.05) when compared to control groups. The cohort study reported a further reduction of 20% in the adenoid to choana ratio in children who continued mometasone treatment. A 15% increase was reported in children who discontinued steroid therapy early (p=0.01).

Two trials (n=80) reported adverse events, which included epistaxis (four participants) and stinging/sneezing (seven participants); none was severe enough to necessitate withdrawal from the trials.

Authors’ conclusions
Nasal steroids appeared to be a well-tolerated treatment for improved nasal obstruction symptoms in children with adenoid hypertrophy. This improvement was likely to be due to a reduction in adenoid size.

CRD commentary
The review question was clear and was supported by potentially reproducible inclusion criteria. The search strategy included some relevant sources, but the restriction to English-language articles may mean that studies were missed and meant that language bias could not be ruled out. There was no apparent search for unpublished material, which meant that publication bias was a possibility. The review process was conducted with efforts to minimise errors and bias in the processes of study selection and data extraction; an appropriate validity assessment tool was used for the included trials, but it was unclear whether the same efforts were applied in this assessment. There was no reported quality assessment of the cohort study. Adequate study details were supplied. The method of synthesis appeared to be appropriate in the presence of observed clinical heterogeneity. The review was reasonably well-conducted, but given potential for language and publication biases and the inclusion of only a small number of good-quality trials, a degree of caution is warranted when interpreting 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 high-quality randomised controlled trials were needed to evaluate effectiveness of nasal steroids as a first-line therapy for children with adenoid hypertrophy. Future research should focus on validation of outcome measures and determining optimal duration of treatment, minimum effective dosage, long-term efficacy and safety of maintenance therapy.

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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.