EVIDENCE-BASED HEALTH CARE

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SINUSITIS

Background

You regularly see patients with acute sinusitis in your general practice and want to find out whether topical intranasal steroids can improve the clinical response rates.

So what is the question?

Do topical intranasal steroids improve the clinical response rate in patients with acute sinusitis?

The type of evidence to look for, and where to look for it

The best evidence regarding the effects of treatment will come from randomised controlled trials (RCTs). If more than one trial has been conducted, the most reliable evidence, if available, is a systematic review of all relevant RCTs. The Cochrane Collaboration (www.cochrane.org) conducts systematic reviews of the effects of health care interventions using rigorous methods and processes to reduce bias. Therefore, when searching for the evidence, a first port of call would be *The Cochrane Library* (http://www.thecochranelibrary.com).

What was found?

On searching *The Cochrane Library* one Cochrane review on the effects of steroids on acute sinusitis was found.[1]

What did the authors do?

A comprehensive search, without language limitations, was done to identify RCTs in which topical intranasal steroids have been evaluated in comparison with placebo in patients with acute sinusitis (as defined by clinical diagnosis and confirmed by radiological evidence or by nasal endoscopy). Two authors independently identified RCTs for inclusion and data extraction was performed in a standardised manner. The primary outcome was the proportion of participants with either resolution or improvement of symptoms. Secondary outcomes were any adverse events that required discontinuation of treatment, drop-outs before the end of the study, rates of relapse, complications and return to school or work.

Results

Four RCTs (*N* = 1 943) out of 11 potential studies met the inclusion criteria. The treatment assigned was intranasal topical steroids versus control treatment for 15 or 21 days. All the included studies used a placebo in the control group.

Participants in the treatment groups in three trials received intranasal topical steroids for 21 days: one trial assessed fluticasone propionate, two puffs daily in each nostril, giving a total dose of 200 µg; one trial assessed mometasone furoate (MFNS) twice daily giving a total dose of either 400 µg or 800 µg; and one trial assessed budesonide 50 µg twice daily to each nostril. All participants in these trials received antibiotics. The fourth trial assessed MFNS 200 µg and 400 µg total daily doses in the treatment arms for 15 days as monotherapy. Other concomitant therapies were similar in all groups, in every study.

Two RCTs had adequate generation of the random sequence and one reported adequate allocation concealment. The trials were all double-blinded.*

Intranasal steroids, compared with placebo, significantly increased the resolution or improvement of symptoms (Table I). No significant adverse events were reported and there was no significant difference in the drop-out and recurrence rate (relative risk (RR) 0.71; 95% confidence interval (CI) 0.44-1.15) (Fig. 1).

Implications for practice

Intranasal corticosteroids are effective in providing relief or improvement in clinical outcomes in acute uncomplicated sinusitis as diagnosed both clinically and by radiology or endoscopy.[1] No significant adverse events or differences in the recurrence rate were found.

Table I. Summary of main results: resolution or improvement of symptoms

Intervention	Number of trials	Number participants	Relative risk (RR) and 95% confidence interval (CI)
Meta-analysis* for the 200 µg, 400 µg and 800 µg doses MFNS	3	1 792	RR 1.11; 95% CI 1.04 to 1.18
MFNS 200 µg	2	590	RR 1.04; 95% CI 0.98 to 1.11
MFNS 400 µg	2	1 130	RR 1.10; 95% CI 1.02 to 1.18

MFNS – mometasone furoate.

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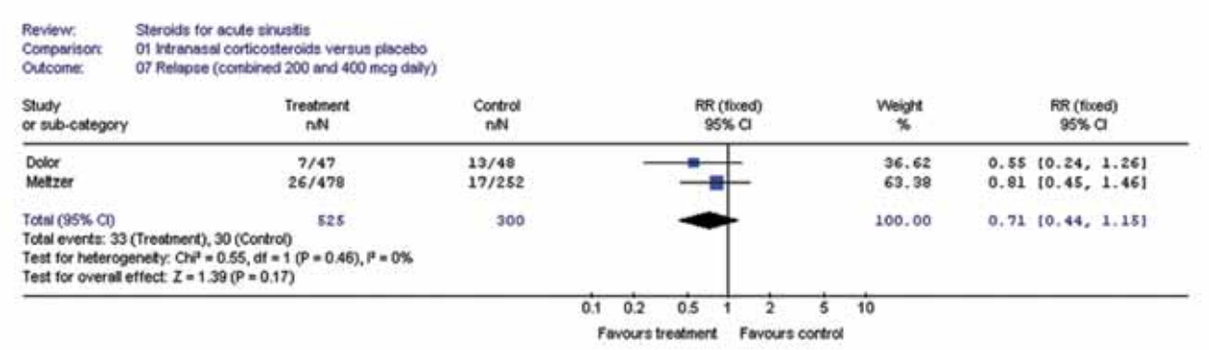

Fig. 1. Forest plot graphically showing results for relapse (recurrence).*

Aims

This feature on evidence-based health care (EBHC) aims to present useful practice-related information on topics relevant to readers of *Current Allergy & Clinical Immunology*. The treatment of topics is not comprehensive. The main aim is to illustrate selected aspects of the EBHC process, viz. i) identifying the best evidence and ii) applying valid and relevant evidence in clinical practice. The box titled 'Some terms explained' enlarges on the technical terms mentioned in the text and marked with an asterisk (*).

REFERENCES

1. Zalmanovici A, Yaphe J. Steroids for acute sinusitis. *Cochrane Database of Systematic Reviews* 2007, Issue 2. Art.No.: CD005149. DOI: 10.1002/14651858.CD005149.pub2.
2. Higgins JPT, Green S, eds. Cochrane Handbook for Systematic Reviews of Interventions 4.2.5 [updated May 2005]. www.cochrane.org/resources/handbook/hbook.htm (accessed 19 September 2007).
3. Egger M, Smith GD, Phillips AN. Meta-analysis: principles and procedures *BMJ* 1997; **315:** 1533-1537.

*Some terms explained

Blinding (masking): The process of preventing those involved in a trial from knowing to which comparison group a particular participant belongs. The risk of bias is minimised when as few people as possible know who is receiving the experimental intervention or control. Participants, caregivers, outcome assessors, and analysts are all candidates for being blinded. Blinding of certain groups is not always possible, for example surgeons in surgical trials. The terms single-blind, double-blind and triple-blind are in common use, but are not used consistently and so are ambiguous unless the specific people who are blinded are listed.[2]

Meta-analysis: The use of statistical techniques in a systematic review to integrate the results of included studies considered to be 'combinable'[2,3] It provides a quantitative summary of the overall treatment effect (typically a pooled estimate and confidence interval). Sometimes meta-analysis is used as a synonym for systematic reviews, where the review includes a meta-analysis.

Forest plot: A graphical representation of the individual results of each study included in a meta-analysis together with the combined meta-analysis result. The results of individual studies are shown as squares centred on each study's point estimate. A horizontal line runs through each square to show each study's confidence interval – usually, but not always, a 95% confidence interval. The size of the square provides an indication of the weight that study gives to the meta-analysis. The overall estimate from the meta-analysis and its confidence interval are shown at the bottom, represented as a diamond. The centre of the diamond represents the pooled point estimate, and its horizontal tips represent the confidence interval.[2]