

EVIDENCE-BASED HEALTH CARE

ALLERGEN IMMUNOTHERAPY FOR SEASONAL ALLERGIC RHINITIS

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Background

Despite using various treatments, a patient suffering from hay fever has experienced no improvement in symptoms. He heard that immunotherapy can help with symptoms and approaches you to find out more details. You decide to find the best available evidence to answer his questions.

So what is the question?

The EBHC process is triggered by formulating the right question. One question might be: 'In people with allergic rhinitis, what is the effect of allergen immunotherapy on the symptoms of allergic rhinitis?' The best phrasing of the question involves using the PICO principle (Table 1).¹

Table 1. PICO principle to phrase a question

P	Participant (who)
I	Intervention (what)
C	Comparison (compared to what)
O	Outcome(s)

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 following rigorous methods and processes to reduce bias. Therefore, when searching for the evidence, a first port of call

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 (*).

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would be *The Cochrane Library** (<http://www.thecochranelibrary.com/>).

What was found

Using the advanced search option and the search terms 'immunotherapy' and 'rhinitis' to 'search all text' (Box 1) two Cochrane Reviews are found that assess the effects of immunotherapy for seasonal allergic rhinitis – the one focusing on injection immunotherapy² and the other on sublingual immunotherapy.³

The screenshot shows the search interface of The Cochrane Library. The search terms 'immunotherapy' and 'rhinitis' are entered in the search box. The search results are displayed in a table with columns for 'Search Part' and 'We'. The search results are as follows:

Search Part	We
immunotherapy	Search All Text
AND rhinitis	Search All Text
AND	Author
AND	Abstract
AND	Tables

Below the search results, there are options to 'Restrict Search by Record Status' and 'Date Range'. The 'Date Range' is set to 1800-2007.

Searching The Cochrane Library.

What the authors did

Comprehensive searches were conducted to identify relevant studies. RCTs involving participants with symptoms of seasonal allergic rhinitis and proven allergen sensitivity were included. Two authors independently performed quality assessment of included studies, and data from identified studies were abstracted onto standard extraction forms. Analysis was performed using the standardised mean difference* method.

Results

Fifty-one RCTs (2 871 participants) were included in the injection immunotherapy review while 22 RCTs involving 979 patients were included in the review evaluating sublingual immunotherapy. In both reviews allocation concealment,* based on statements made by the original authors, was considered adequate in all studies. Most of the included studies reported symptom scores, recorded in patient diaries, as a primary outcome measure.

Diary scores reflecting concurrent use of anti-allergic medication were reported in 13 studies evaluating injection immunotherapy and 18 studies evaluating

Table II. Summary of main results

	Number studies	Number of participants	Standardised mean difference (SMD) (95% CI)
Symptom score			
Injection	15	1063	SMD -0.73 (95% CI -0.97 to -0.50).
Sublingual	21	959	SMD -0.42 (95% CI -0.69 to -0.15)
Medication score			
Injection	13	963	SMD -0.57 (95% CI -0.82 to -0.33)
Sublingual	17	803	SMD -0.43 95% CI -0.63 to -0.23)

sublingual immunotherapy. The duration of maintenance treatment and the period of follow-up varied considerably between studies, largely reflecting pre-seasonal, co-seasonal and perennial administration. Duration of injection immunotherapy varied from 3 days (minimum duration) to 3 years (maximum duration).

Both types of immunotherapy were effective in reducing symptom and medication scores (Table II). All of the studies evaluating sublingual immunotherapy reported a complete absence of systemic side-effects. Minor local side-effects consisting of itching and swelling of the oral mucosa were reported. In patients on injection

immunotherapy adrenaline was given in 0.13% (19 of 14 085 injections) and in 0.01% (1 of 8 278 injections) in the placebo group for treatment of allergic reactions; there were no fatalities in either group.

Implications for practice

Both injection and sublingual immunotherapy are effective in improving symptoms and reducing the need for medication in patients with seasonal allergic rhinitis. There are risks associated with the use of injection immunotherapy, including the rare occurrence of allergic reactions requiring adrenaline.

Declaration of conflict of interest

The author declares no conflict of interest.

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***Some terms explained**

Allocation concealment: The process used to ensure that the person deciding to enter a participant into a randomised controlled trial does not know the comparison group into which that individual will be allocated. This is distinct from blinding, and is aimed at preventing selection bias. Some attempts at concealing allocation are more prone to manipulation than others, and the method of allocation concealment is used as an assessment of the quality of a trial.

Standardised mean difference: The difference between two estimated means divided by an estimate of the standard deviation. It is used to combine results from studies using different ways of measuring the same concept, e.g. mental health. By expressing the effects as a standardised value, the results can be combined since they have no units.

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For information about access to the full text of *The Cochrane Library* please visit <http://www.mrc.ac.za/cochrane/additional.htm>