Authors' objectives
The objectives of the review were:

to synthesise the available evidence regarding how allergic and nonallergic rhinitis are diagnosed;

to determine whether differentiating between allergic and nonallergic rhinitis is important;

to assess the efficacy of treatments for nonallergic and allergic rhinitis; and

to determine how the treatment of allergic rhinitis impacts on the development of asthma.

Searching
The authors searched MEDLINE (from 1966 to October 2000), consulted technical experts, and examined references of meta-analyses and selected review articles to identify additional studies. The search strategy was provided in the text. The MEDLINE search was restricted to publications in the English language.

Study selection
Study designs of evaluations included in the review
For evaluating treatment, randomised controlled trials (RCTs) were included in the review. Cross-sectional studies, uncontrolled trials, case reports, case series and abstracts were excluded.

Specific interventions included in the review
For evaluating the treatment of allergic rhinitis, the interventions included antihistamines, nasal corticosteroids, immunotherapy, sedating and non-sedating antihistamines, cromolyn sodium, anticholinergic agents, leukotriene inhibitors and sympathomimetics. For the treatment of nonallergic rhinitis, the interventions included antihistamines, nasal corticosteroids, anticholinergics and sympathomimetic agents.

Participants included in the review
Participants with allergic or nonallergic rhinitis were included in the review. The review included male and female children and adults, minorities, people on low incomes and elderly patients.

Outcomes assessed in the review
There were no explicit inclusion criteria for the outcomes assessed. The outcomes assessed in the papers included watery eyes, itchy eyes, rhinorrhea, sneezing, itchy nose, and nasal congestion. Adverse events (e.g. dizziness, headache) were also evaluated in the review.

How were decisions on the relevance of primary studies made?
The search results were screened. Potential studies were identified for retrieval based on the setting, study question, population and disease. The authors did not state how many reviewers performed the selection.

Assessment of study quality
The authors categorised studies based on their methodological quality. Grade A studies were those with minimal bias (double-blinded, well-concealed randomisation, few drop-outs and no, or only minor, reporting of trial problems likely to cause significant bias). Grade B studies were those susceptible to some bias (single-blinded only, unclear concealment of randomisation, or some inconsistency in the reporting of the trial, but unlikely to result in major bias). Grade C studies were those likely to have large bias (unblinded, inadequate concealment of random allocation, high drop-out rate, or substantial inconsistencies in the reporting of the trial such that it may result in large bias). One
reviewer extracted data on quality and a second reviewer checked them. A third reviewer was consulted if there were any disagreements.

Data extraction
One reviewer abstracted the data into forms and a second reviewer checked them. A third reviewer was consulted if there were any disagreements. Data were extracted on the intervention, duration of study, demographics, inclusion and exclusion criteria, treatment outcomes, symptom scale, efficacy and safety of the outcomes, potential sources of bias and source of funding.

Methods of synthesis
How were the studies combined?
A descriptive synthesis of the studies was presented. Efficacy of treatment was presented separately for nonallergic and allergic rhinitis according to the drug class.

How were differences between studies investigated?
Due to heterogeneity, the authors did not combine the studies using a meta-analysis. Differences between the studies were presented in evidence tables.

Results of the review
Seventy-three RCTs evaluated treatments for allergic rhinitis and 13 RCTs evaluated treatments for nonallergic rhinitis.

The majority of studies showed a clear benefit for using intranasal corticosteroids over either sedating or non-sedating antihistamines for the relief of symptoms of nasal allergy. There were no consistent differences between sedating and non-sedating antihistamines with respect to symptom alleviation in seasonal and perennial allergic rhinitis. However, the side-effects profile favoured non-sedating antihistamines. No RCTs comparing immunotherapy with antihistamines or with nasal corticosteroids, in the treatment of seasonal and/or perennial allergic rhinitis, were identified. There was evidence of a beneficial effect of cromoglycate in the management of both seasonal and perennial allergic rhinitis. The majority of studies reported no serious adverse events associated with the use of antihistamines, cromolyn, or intranasal corticosteroids.

There was a paucity of evidence for the use of antihistamines or nasal corticosteroids for the management of nonallergic rhinitis. Overall, these treatments were well tolerated with no major side-effects.

Authors’ conclusions
Data concerning the treatment of nonallergic rhinitis were limited. In the treatment of allergic rhinitis, nasal corticosteroids were superior to antihistamines and there was no consistent difference between sedating and non-sedating antihistamines for the relief of nasal symptoms. The majority of studies reported no major adverse events.

CRD commentary
The authors did not present clear inclusion and exclusion criteria, except for the interventions of interest; this reflects the broad nature of the review. The authors searched only one database for English language publications, although they did check references and consult technical experts for additional studies. It would have been beneficial to have searched more databases with no language restrictions, and to have sought unpublished trials to minimise retrieval and publication biases. The validity of the included studies was assessed and presented in the review in tabular format. The authors could have incorporated their grading system when summarising the data in the text. Detailed evidence tables were presented in the appendices. Overall, the conclusions of the review follow the results as based on a narrative summary of the data.

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

Research: The authors made several recommendations for further research. Of those that concerned treatment, the authors stated that efficacy studies of complementary therapies for nonallergic rhinitis are needed. In addition, higher quality studies are required, especially those funded by nonproprietal sources.

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