Herbal treatments of asthma: a systematic review


CRD summary
This review of Ayurvedic (traditional Indian medicines) and non-Ayurvedic herbs for asthma concluded that herbs may be a useful treatment despite the limited evidence. The conclusions are likely to be reliable but should be considered with caution given the methodological limitations of the review.

Authors' objectives
To review the efficacy, effectiveness and safety of Ayurvedic and collateral herbs in the treatment of asthma.

Searching
The following databases were searched from inception to July 2006: PubMed, MANTIS, EMBASE, Annotated Bibliography of Indian Medicine and the Cochrane Library. Search terms were reported. Relevant journals (titles not reported) and included articles were handsearched for additional references. Researchers within the area were also contacted. Only papers published in English were considered for inclusion.

Study selection
Randomised controlled trials (RCTs) and quasi-experimental studies of herbal medicines, given orally or topically, for the treatment of asthma or experimentally induced asthma in children or adults were eligible for this review. Herbal medicines were defined as the use of any plant part or combination of plant parts. Traditional Chinese medicine herbs and exclusively synthetic products were excluded from the review. Studies were required to report effectiveness via pulmonary function tests or symptom scores.

The included studies evaluated a variety of Ayurvedic (traditional Indian medicines) and non-Ayurvedic medicines. Comparisons included placebo, standard conventional medicine or different doses of the intervention. The populations varied widely, studies included healthy volunteers, patients with stable or asymptomatic asthma, bronchial asthma and allergic or chronic bronchitis. Where reported, age ranged from five to 79 years and, where reported, there seemed to be a greater number of males. The pulmonary function tests related to expiratory volume and flow, vital capacity and breath capacity. Study duration ranged from three days to one year.

The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
RCTs quality was assessed using the Jadad scale (with a maximum of 5 points) and the Singh 26-point scale assessing both sources of bias and reporting. The 26-point scale rated studies as low (0-9), medium (10-17) or high (18-26) quality. Neither scale assessed allocation concealment. For the assessment of quality of their safety evaluation, a 100-point scale Safety Assessment Score for Clinical Trials (SAS-CT) was used assessing six different classifications of adverse event. Studies were rated as poor (<28), medium (28-67) or high (68-100) quality.

Quasi-experimental studies were assessed using the Singh 16-point scale relating to background, treatment details, outcomes, sample, reported data and results. Studies were rated as low (0-5), medium (6-10) or high (11-16) quality.

Where optimum dosage was assessed, this was informed by literature searches conducted by an expert in Ayurvedic medicine.

Validity assessment was carried out by three reviewers independently and disagreements were resolved by discussion.

Data extraction
Data were extracted on patient response to interventions (positive or no change).
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction. They did state that data extraction was validated but gave no further details on this process.

**Methods of synthesis**
A narrative synthesis was carried out. Studies were presented in tables according to study design and herb (Ayurvedic/traditional Indian or other) and in the text according to the herb used.

**Results of the review**
Thirty seven studies met the inclusion criteria; 16 RCTs and 21 quasi-experimental studies (QEDs). Quality varied widely, with scores ranging from 2 to 5 on the Jadad scale, 5 to 23 on the Singh 26-point score, and 0 to 100 on the Safety Assessment Score for Clinical Trials adverse event score.

Ayurvedic Herbs (eight RCTs and 17 QEDs):
Of the 25 studies, 21 reported positive results in at least some patients. Successful interventions included Tylophora indica (three out of five RCTs and three QEDs), Solanum xanthocarpum (four QEDs, but the one RCT showed no difference), and Picrorhiza kurroa (one QED, but the one RCT showed no difference). For adverse effects Tylophora indica was associated with sore mouth, nausea and vomiting, and upper abdominal pain; Picrorhiza kurroa was associated with vomiting, rash, diarrhoea, itching and giddiness. Adverse events were either not reported for other herbs or were less frequent.

Non-Ayurvedic Herbs (eight RCTs and four QEDs):
All studies reported positive results for at least one intervention in some patients. Successful interventions included Petasites hybridus/butterbur (one RCT and one QED), Eucalyptus oil (1 RCT and 1 QED), Cannabis sativa/marijuana (four RCTs; two experimentally induced and two asthmatic patients) and Nigella sativa (1 RCT and 1 QED). Adverse events included heartburn and gastritis with Eucalyptus oil; intoxication and tachycardia with marijuana; butterbur was well tolerated.

**Authors' conclusions**
Overall evidence suggested that herbs may be a useful treatment option for asthma.

**CRD commentary**
This review addressed a broad question with broad inclusion criteria. The searches may not have fully addressed the grey literature leading to potential publication bias, and omitted the main complementary/alternative medicine database (AMED). Language bias is likely given the restriction to English language papers and, with the focus on Ayurvedic (Indian) herbs, the review may have omitted relevant studies. The processes of study selection and data extraction were not described, which making it difficult to ensure that reviewer error/bias was sufficiently addressed. Quality was assessed using several complex scales and performed in duplicate but the presentation of overall summary scores may have resulted in the loss of useful details. The heterogeneous studies were appropriately discussed within a narrative synthesis, although this often failed to summarise the overall results. As well as discussing in terms of type of herb, it may have been useful to see the results presented according to type of asthma. The majority of studies reported some positive benefits of herbs in pulmonary function tests, and therefore the authors’ conclusion seems reliable. However, the magnitude of these benefits is not known and often applied to particular outcomes that varied across studies.

**Implications of the review for practice and research**
Practice: The authors stated that there was insufficient evidence to make recommendations for clinical practice.

Research: The authors stated that high quality studies are required to determine dosage effects, longer-term effects and the safety of herbs in the treatment of pulmonary diseases.

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Record Status
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.