

Does acupuncture or Chinese herbal medicine have a role in the treatment of allergic rhinitis?

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Purpose of review

Complementary medicines, including acupuncture and Chinese herbal medicine, are being used increasingly for the management of allergies such as allergic rhinitis. Until relatively recently, however, evidence for the efficacy and safety of these therapies in allergic conditions has been lacking.

Recent findings

A limited number of well conducted studies, all with small sample sizes, have demonstrated the promising therapeutic potential of acupuncture and Chinese herbal medicine for allergic rhinitis. The possible additional benefit of combining the two therapies, however, is yet to be confirmed. There are concerns about the appropriateness of the sham/placebo controls that have been used in acupuncture studies and also about the safety evaluation of individual herbs and herbal formulations. In addition to well established symptom scores and specific quality of life questionnaires, the concurrent use of conventional anti-allergy medications has been utilized as an outcome measure in a number of trials that have evaluated the effectiveness of acupuncture and Chinese herbal medicine for allergic rhinitis.

Summary

Tentatively, it appears that acupuncture and Chinese herbal medicine can be effective treatments for allergic rhinitis. Confirmatory evidence, however, is needed from large and, ideally, multi-centre trials.

Keywords

acupuncture, allergic rhinitis, Chinese herbal medicine

Introduction

Allergic rhinitis is a common condition worldwide. In Australia, the reported prevalence of allergic rhinitis is 16.0% [1] but it affects approximately 40% of young Victorian adults [2]. Similar prevalence figures have been reported for the UK (10–15%) [3] and the US (20%) [4]. Allergic rhinitis leads to impairment of physical, emotional and social functions and thus can significantly affect quality of life [5]. It may also lead to other medical conditions such as asthma, nasal polyps and otitis media [6]. Allergic rhinitis results in significant direct and indirect health care and economic costs [7].

Current treatments for allergic rhinitis include symptomatic management with various anti-allergy drugs and immunotherapy. These treatments have proven efficacy, but the response to them is variable, frequently not producing complete relief [8,9]. Recently, many sufferers have used complementary therapies such as acupuncture or Chinese herbal medicine (CHM) for the management of allergies, including allergic rhinitis [10,11]. There is limited evidence, however, for the efficacy and safety of acupuncture and CHM in these conditions.

Is acupuncture effective for allergic rhinitis?

Acupuncture, one of the modalities of Chinese medicine, involves the insertion of fine needles to stimulate specific subcutaneous sites of the body. The therapy has a history of over 2000 years [12]. Traditionally, acupuncture has been used for the treatment of a wide range of clinical conditions including allergic rhinitis [13]. The clinical practice of acupuncture is guided by Chinese medicine theory which emphasizes the restoration of organ functions [14].

Current evidence, although supportive of the effectiveness of acupuncture in allergic rhinitis, is based on a few relatively small-scale clinical trials. In 2002, we conducted a crossover, two-phase, single-blind, randomized pilot trial and found that acupuncture treatment (three times a week for 4 weeks) significantly reduced the severity of both nasal and non-nasal symptoms of allergic rhinitis [15]. In addition to the main outcome measure of subjective symptom scores, we monitored the concurrent use of conventional anti-allergic medication and found no significant difference in the use of relief medication between the real and sham acupuncture groups [15]. We subsequently conducted a single blind, randomized, sham-controlled acupuncture trial for persistent allergic

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Abbreviation

CHM Chinese herbal medicine

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rhinitis using a similar clinical protocol (unpublished data). In this study, participants received either real acupuncture or sham acupuncture twice a week for 8 weeks. Seventy-nine (79) individuals were randomized, 41 being in the real acupuncture group and 38 in the control group. Real and sham acupuncture treatments were performed by the same qualified acupuncturist. Participants and assessors were blinded throughout the study. At the end of the 8-week treatment period, nasal symptom scores, but not the non-nasal symptom scores, for the real acupuncture treatment group were significantly lower than those for the control group. The use of conventional anti-allergic medication by individuals who received real acupuncture also decreased over the 8 weeks of treatment, however there was no significant difference between the real and sham-treated groups in medication use. Rhino-conjunctivitis and rhinitis quality of life questionnaire (RQLQ) scores demonstrated a higher quality for the majority of domains for the group treated with real acupuncture than for the sham-treated group. It was of particular interest that, 3 months after the end of the treatment period, for both nasal and non-nasal symptom scores, there was significant difference between the treatment and control groups (unpublished data).

Consistent with our findings, another randomized sham-controlled trial of acupuncture for the treatment of childhood persistent allergic rhinitis enrolled 72 children at a paediatrics clinic in Hong Kong, China. Patients received either real or sham acupuncture twice a week for 8 weeks. Those who received real acupuncture had significantly lower nasal symptom scores and had more symptom-free days than the sham acupuncture treated group [16^{••}]. There was no difference in the use of conventional medication during the treatment period between the real and sham-treated groups. Blood eosinophil counts, total and specific IgE and nasal eosinophil counts did not differ between the real and sham acupuncture groups after treatment.

In contrast to the studies discussed above, another study [17], with a relatively small sample (40 participants), in which the primary outcome measure, a visual analogue symptom scale, which was only assessed before treatment and 12 months after treatment, found that acupuncture was not effective for symptomatic relief of allergic rhinitis. The study had methodological deficiencies, however, in that it did not have clear inclusion/exclusion criteria, it did not take account of conventional medication use, and it included individuals who had used acupuncture previously.

How is control group acupuncture treatment devised?

Devising an appropriate control intervention, either sham or placebo, continues to be a major problem in acupunc-

ture research [18–23]. Note that, despite having different meanings, the terms sham acupuncture and placebo acupuncture have been used interchangeably [16^{••},18,19,21]. It is generally accepted that a true ‘placebo’ for acupuncture treatment has not yet been devised [19,24]. A number of devices/procedures have been proposed as placebos [25–27,28[•]]. With such procedures, an acupuncture needle is allowed to be advanced to the skin surface but not to penetrate the skin [25–27,28[•]]. None of these procedures faithfully mimic individual perceptions of acupuncture and hence they may not satisfy the requirements of a placebo [24]. None of these procedures has been used as a control in recent major acupuncture trials [29^{••},30^{••}].

A procedure, best described as sham acupuncture, was used by Vincent in 1989 [31] and is commonly used in acupuncture studies [21,29^{••},30^{••}]. The sham treatment involves superficial needling, removed from acupoints, with minimal stimulation. This sham acupuncture procedure mimics the clinical practice of acupuncture and has been used successfully – with minor adaptations – in many clinical trials including those for allergic rhinitis [15,16^{••},17]. The sham acupuncture, however, cannot be considered as a true placebo and it probably results in a relatively high therapeutic response rate in the control group [18,19,24].

Is acupuncture safe?

Acupuncture is generally considered a safe and drug-free therapeutic option when administered by properly qualified practitioners [12,32]. A recent survey of acupuncture use [32] and a number of allergic rhinitis acupuncture trials [15,16^{••},17] have demonstrated that acupuncture is associated with only minor adverse events, such as nausea and fainting, and is generally considered to be safer than drug therapy for conditions in which it is used.

Is Chinese herbal medicine useful for allergic rhinitis?

In Chinese medicine, allergic rhinitis is generally considered a form of fundamental deficiency in the body, and the treatment strategy is devised to correct the deficiency, using multiple herbs with different and sometimes synergistic actions. We have recently reviewed the efficacy of CHM for allergic rhinitis [33^{••}]. Based on the available clinical evidence, including several randomized clinical trials, it seems that CHM may be beneficial for the symptomatic treatment of allergic rhinitis, although more quality trials are needed to confirm this [33^{••}]. Given that the current objective measures for allergic rhinitis are still debatable [34[•]], subjective symptom assessments are the most important primary outcome measures for allergic rhinitis trials [35]. Accordingly, Xue *et al.* [36] demonstrated in a placebo-controlled trial

that a CHM (RCM-101) significantly reduced the severity of nasal and non-nasal symptoms and improved RQLQ scores in seasonal allergic rhinitis. Similarly, Hu *et al.* [37] showed that a CHM formulation, Biminne, was effective in relieving some of the symptoms of persistent allergic rhinitis (PAR), and that the beneficial effects lasted for more than 12 months.

The efficacy of CHM seems to be formula specific. This can be shown from our recent work on RCM-101 and RCM 102 (unpublished data). Most traditional Chinese herbal formulations for allergic rhinitis contain multiple herbs. There are 18 herbs in RCM-101. Frequently, when there is evidence that a herbal formula is effective for a particular condition, pharmacological studies are undertaken to identify the specific herbs in the formula that contribute to the beneficial effect [38]. We took such an approach with RCM-101. Guided by the inhibitory effects of the individual herbal ingredients of the formula on allergic and inflammatory mediators, such as histamine release from mast cells, we reduced the number of ingredients of RCM-101 from 18 to eight. The modified formula, which we named RCM 102, was shown *in vitro* to have similar inhibitory activity to RCM-101 on the inflammatory mediators studied (unpublished data). When we evaluated the efficacy of RCM-102 in a randomized double-blind placebo-controlled clinical trial, however, we found it to be no more effective than placebo (unpublished data). The lack of efficacy of the modified formula, in contrast to that of the more complex original formula, may simply be due to a failure to identify all of the pharmacological actions responsible for the allergic rhinitis efficacy of RCM-101. Alternatively, it is conceivable that certain herbs present in the original formula, but omitted from the modified formula, possessed activity which, alone, is not anti-allergic but which potentiated the anti-allergic actions that were identified in other herbs. That is, the modified formula may not have included essential 'helper' herbs.

It should be noted that there are reports of successful formula optimization. For example, a new Chinese herbal formula (containing three herbs), with efficacy in reducing the symptoms of allergic asthma, was developed from an existing formula, containing 14 herbs, on the basis of an analysis of pharmacological activity using a murine asthma model [39^{••}].

With one exception, all herbal therapies for which there exists evidence of efficacy in allergic rhinitis contain multiple herbs. The exception is butterbur (*Petasites Hybridus*), a herb that contains petasin which has antiinflammatory activities [40]. Butterbur has been shown to be as effective as the histamine H₁-receptor antagonist, cetirizine, in the management of allergic

rhinitis [41] and significantly better than placebo for intermittent allergic rhinitis [42]. There are safety concerns, however, about the long-term use of butterbur [43], and only the rhizome of the herb has been approved for therapeutic use by the German Commission E [44]. Moreover, both the butterbur leaf and rhizome contain pyrrolizidine alkaloids which are potentially hepatotoxic and carcinogenic [44].

Is Chinese herbal medicine safe?

The safety of CHM is of concern to health professionals and therapeutic regulatory agencies and the public is not well informed about the safety of herbal medicines. Generally speaking, CHM, if supervised and used properly, is safe, and serious adverse reactions are associated with only a small number of herbs. This generalization is based on the long history of use of Chinese herbal therapies. With increasing use, however, globally, there are reports of adverse reactions associated with herbal medicines, including recent reports of serious toxicities, even fatalities, associated with some herbal products, including CHMs [45,46].

Most herbal formulae used for allergic rhinitis treatment do not contain toxic ingredients. This is reflected in the reports of clinical trials with herbal therapies in allergic rhinitis and asthma which, almost invariably, do not report significant adverse reactions [36,37,39^{••}]. Some patients may experience mild nausea, abdominal bloating or skin rashes. Also there may be dose-dependent or allergic reactions to certain herbal ingredients [36,37].

CHMs are not problem free, however. There are growing concerns about toxicities arising as a result of the misidentification of herbs and of contamination and adulteration of herbal medicines, such as those used for weight reduction [47,48]. Contamination may extend to the inappropriate combination of herbal products with conventional therapeutic drugs. It is essential that quality control of herbal products, including labelling, be overseen and enforced by appropriate regulatory authorities [45].

Another important issue is the potential for interaction of herbal medicines with conventional medicines, foods, and also interactions between different herbal therapies. Of most concern are drug-herb interactions. Drug-herb interactions are generally of greater concern for therapeutic drugs with a low therapeutic index, such as anti-cancer drugs, drugs for which dosage is highly patient specific, and anticoagulants [49], and also in patients in which there is age or disease-related impaired mechanisms of elimination. To our knowledge, harmful drug-herb interactions involving CHMs for allergic rhinitis have not been reported.

Would the combination of acupuncture and Chinese herbal medicine be more effective than either alone?

Traditionally, acupuncture and herbal medicine are frequently used concurrently to improve clinical outcomes. In respect of allergic rhinitis, however, there is little evidence that a combination of acupuncture and herbal medicine is appropriate. Thus, we found that, although acupuncture and CHM alone were each effective for symptomatic relief of allergic rhinitis [15,36], a combination of the two produced no additional benefit [50]. It should be noted, however, that, in our study, individuals received real acupuncture plus either real or placebo herbal medicine. This design might have led to an increased placebo effect since individuals would have obviously been aware that they were receiving acupuncture.

Brinkhaus and colleagues [51[•]] reported that the combination of acupuncture and CHM was effective in the treatment of allergic rhinitis. The study design, however, was such that the two treatments were not tested alone and hence relative comparisons of effectiveness could not be made. Clearly, whether or not a combination of acupuncture and CHM is an appropriate approach to treating the symptoms of allergic rhinitis is still an open question.

Outcome measures

Most outcome measures used in clinical trials on the treatment of allergic rhinitis are well established [52^{••}] and include symptoms scores, symptom-free periods and quality of life assessments. Specific and total IgE tests have also been used in a small number of studies [16^{••},17,36,37]; however, the value of such measurements is yet to be determined. Quantification of the concurrent use of conventional relief medication, however, is an important outcome measure that has been used infrequently [15,16^{••},36,37]. Also it is important to account for possible variations in seasonal allergens, such as pollens, by monitoring pollen counts during trials.

Further studies

Further studies with larger sample sizes and multi-centre studies are warranted. It is also important to determine the appropriateness of the various sham/placebo controls for both acupuncture [19] and herbal therapies and to assess their impacts on trial outcomes. With regard to CHM trials, quality-certified herbs and formulae are critical. In addition, holistic measures, long-term follow-up and Chinese medicine specific quality of life should be taken into consideration in future trials [53,54,55[•]].

Conclusion

There is promising evidence, subject to further confirmation by large trials, that acupuncture and specific

herbal formulae can be effective and safe alternatives for symptomatic treatment of allergic rhinitis.

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Additional references related to this topic can also be found in the Current World Literature section in this issue (p. 243).

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