Update review

ARIA update: I—Systematic review of complementary and alternative medicine for rhinitis and asthma

Giovanni Passalacqua, MD,[a] Philippe J. Bousquet, MD,[b] Kai-Hakon Carlsen, MD,[c] James Kemp, MD,[d] Richard F. Lockey, MD,[e] Bodo Niggemann, MD,[f] Ruby Pawankar, MD,[g] David Price, MD,[h] and Jean Bousquet, MD[b] *Genoa, Italy, Montpellier, France, Oslo, Norway, San Diego, Calif, Tampa, Fla, Berlin, Germany, Tokyo, Japan, and Aberdeen, United Kingdom*

Complementary-alternative medicines are extensively used in the treatment of allergic rhinitis and asthma, but evidence-based recommendations are lacking. To provide evidence-based recommendations, the literature was searched by using MedLine and the Cochrane Library to March 2005 (Key words: Asthma [OR] Rhinitis, [AND] Complementary [OR] Alternative Medicine, [OR] Herbal, [OR] Acupuncture, [OR] Homeopathy, [OR] Alternative Treatment). Randomized trials, preferably double-blind and published in English, were selected. The articles were evaluated by a panel of experts. Quality of reporting was assessed by using the scale validated by Jadad. The methodology of clinical trials with complementary-alternative medicine was frequently inadequate. Meta-analyses provided no clear evidence for the efficacy of acupuncture in rhinitis and asthma. Some positive results were described with homeopathy in good-quality trials in rhinitis, but a number of negative studies were also found. Therefore it is not possible to provide evidence-based recommendations for homeopathy in the treatment of allergic rhinitis, and further trials are needed. A limited number of studies of herbal remedies showed some efficacy in rhinitis and asthma, but the studies were too few to make recommendations. There are also unresolved safety concerns. Therapeutic efficacy of complementary-alternative treatments for rhinitis and asthma is not supported by currently available evidence. (J Allergy Clin Immunol 2006;117:1054-62.)

Key words: *Complementary-alternative medicine, asthma, rhinitis*

In Western countries, for cultural and historical reasons, medical approaches that differ from conventional medicine are grouped under the term *alternative medicines*. Some of these techniques have a millenary history and represent the traditional medicine in many countries. Therefore the term *complementary-alternative medicine* (CAM) is preferred because it does not imply a negative judgment. There are numerous CAM techniques, and their number has even increased over the last years with the introduction of new holistic approaches. A list of the CAMs is included in Table I.

Allergy and allergic diseases, including asthma and rhinitis, are frequently treated with CAMs, where homeopathy, acupuncture, herbal medicines, and yoga are the most used techniques. Recent studies report that 25% to 50% (up to 70%) of the general population currently use or have used CAMs on at least one occasion,[1-6] and similar figures have been reported in children.[7] Complementary-alternative techniques are also used for diagnostic purposes, despite limited evidence.[8] Some of the reasons for using CAMs include the distrust of conventional scientifically based medicine, the lack of a satisfactory physician-patient interaction, and the belief that CAMs are safe (devoid of side effects) products-procedures.[5,8]

Recommendations for the use of CAMs should be based only on rigorous proof of efficacy derived from high-quality studies because there is considerable cost (to patients and health care systems) and the potential for risks (eg, malpractice, incorrect prescription, and drug

From [a]Allergy and Respiratory Diseases, University of Genoa; [b]Service des Maladies Respiratoires, Hopital A. de Villeneuve, Montpellier; [c]the Norwegian University of Sports and Physical Medicine, Oslo; [d]the Department of Pediatrics, University of California School of Medicine, San Diego; [e]Allergy and Immunology, University of South Florida and J. A. Haley Veterans' Hospital, Tampa; [f]the Department of Pediatric Pneumology and Immunology, University Hospital Charitè, Berlin; [g]the Department of Otorhinolaryngology, Nippon Medical School, Tokyo; and [h]the Department of General Practice and Primary Care, University of Aberdeen, Foresterhill Health Center.

This article has been prepared by the International Board of ARIA (Allergic Rhinitis and its Impact on Asthma) in cooperation with GA^{2}LEN (Global Allergy and Asthma European Network).

Disclosure of potential conflict of interest: K. Carlsen has consultant arrangements with GlaxoSmithKline and is on the speakers' bureau for GlaxoSmithKline, AstraZeneca, and Merck. D. Price has consultant arrangements with Boehringer, GlaxoSmithKline, Pfizer, Ivax, and Viatris; has received grants from UK National Health Service, Abbot Laboratories, Altana Pharma, AstraZeneca, Boehringer, Pfizer, GlaxoSmithKline, Ivax, Merck, Sharpe and Dohme, Novartis, Schering Plough, Trinity Pharmaceuticals, and Viatris; and is on the speakers' bureau for Altana Pharma, AstraZeneca, Boehringer, Pfizer, GlaxoSmithKline, Ivax, Merck, Sharpe and Dohme, and Novartis. The rest of the authors have declared that they have no conflict of interest.

Received for publication September 21, 2005; revised December 12, 2005; accepted for publication December 12, 2005.

Reprint requests: Giovanni Passalacqua, MD, Allergy and Respiratory Diseases, Department of Internal Medicine, Padiglione Maragliano, L.go R. Benzi 10, 16132 Genoa, Italy. E-mail: passalacqua@unige.it.

0091-6749/$32.00

doi:10.1016/j.jaci.2005.12.1308

Abbreviations used
CAM: Complementary-alternative medicine
DBPC: Double-blind, placebo-controlled
QOL: Quality of life

interactions) incurred by their use in a non–evidenced-based approach. Thus it was believed that a detailed analysis of the experimental evidence concerning the clinical use of CAMs in asthma and rhinitis was needed.

METHODS

To provide evidence-based recommendations, the available literature was searched with MedLine up to September 2005 (key words: Asthma [OR] Rhinitis, [AND] Complementary [OR] Alternative Medicine, [OR] Herbal, [OR] Acupuncture, [OR] Homeopathy, [OR] Alternative Treatment). Randomized trials, preferably double-blind and published in English, were selected, including all interventions in which CAMs were used. The Cochrane Library was also searched. The reference lists of all selected articles were reviewed, and all members of the group were asked to identify relevant articles possibly not included in the search.

Quality of reporting was assessed by using the scale developed and validated by Jadad et al (Table II).[9] This scoring system takes into account the most relevant characteristics of a clinical trial, which are randomization and blinding. Two points are given, respectively, to correct random allocation and to correct blinding, and 1 point is given if description of dropouts and withdrawals is provided. Thus the maximum score is 5, and a score of at least 3 indicates an adequate methodology. The strength of the evidence of the studies was then evaluated by using the recommendations by Shekelle et al.[10]

TABLE I. Complementary-alternative medicines

Physical techniques	**Systematic medicines**	**Other**
Acupuncture	Anthroposophy	Bioresonance
Balneotherapy	Indian (Ayurveda)	Chromotherapy
Breathing control	Japanese (Kampo)	Enematherapy
Chiropractic	Sciamanic medicine	Homeopathy
Massage	Traditional Chinese medicine	Hopi candles
Osteopathy		Hypnosis
Spinal manipulation	**Behavioral**	Iridology
Yoga	Biofeedback	Kinesiology
	Clinical ecology	Prayer
Phytotherapy	Dissociated diets	Reflexology
Aromatherapy		Speleotherapy
Bach's flowers		Urine therapy
Herbal medicine		

TABLE II. Scoring system of trials according to Jadad et al[9]

	Question	Score
1	Study described as randomized (including the words "random," "randomization," "randomly")?	Yes = 1, no = 0
2	Study described as double-blind?	Yes = 1, no = 0
3	Withdrawals and dropouts described?	Yes = 1, no = 0
4	Method of randomization described and appropriate? Appropriate—tables of random numbers, computer-generated sequences Not appropriate—alternate allocation, birth date	Yes = 1, no = 0
5	Method of double-blinding described and appropriate?	Yes = 1, no = 0

ACUPUNCTURE

Acupuncture is part of traditional Chinese medicine and is widely used for the treatment of chronic illnesses, including asthma. The theory behind the use of acupuncture is to restore the balance of "vital flows" by inserting needles at exact points of the body surface, where the "meridians" of these flows lie. Stimulation of the specific points can also be made with pressure or laser application. Acupuncture can be studied in a rigorous manner by using sham acupuncture as a control procedure.[11] The efficacy of acupuncture in asthma has been evaluated in several randomized controlled trials.[12-24] Few data are available for rhinitis.

One of the first systematic reviews of acupuncture in asthma was conducted by Kleijnen et al in 1991.[11] In that review 13 controlled studies were considered (6 double-blind and 7 single-blind studies). Four of the double-blind studies were negative, and 6 of the single-blind studies were positive. On the basis of the methodologic quality of the studies, the authors concluded more than 10 years ago that beneficial effects of acupuncture were more likely to be found in the low-quality studies (small sample, not randomized, and inadequate analysis). Looking at the available literature (Table III),[12-28] many studies have an inadequate methodology (ie, a Jadad score of less than 3).

On the other hand, some studies in asthma[16-24] were of good methodologic quality, but the majority of them showed no difference between active and sham intervention. Medici et al[19] found a decrease in blood eosinophils in the active group and a transient clinical improvement. Christensen et al[24] described an overall clinical improvement with acupuncture. A systematic review of the clinical trials, including non-English articles, concluded that there was insufficient evidence for the efficacy of acupuncture in asthma.[29] The 2004 Cochrane review[30,31] included 11 studies with 324 participants. Trial reporting was poor, and quality was judged inadequate. The conclusion of this meta-analysis was that acupuncture is not an effective treatment of asthma.

The majority of the studies with acupuncture in allergic rhinitis (often in Chinese language) are not randomized, controlled, or descriptive.[29,32] A randomized controlled trial failed to demonstrate a protective effect of acupuncture[33] against exposure to allergen in a challenge chamber. Another nonrandomized study in nonallergic rhinitis found no difference in nasal airflow and symptoms between acupuncture and electrostimulation.[25] One randomized crossover trial[26] in seasonal rhinitis with poor methodologic quality showed that acupuncture significantly reduced symptoms without changing the need for rescue