

## Review article

# Unconventional therapies in asthma: an overview

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Acupuncture, homoeopathy, mind-body therapies, and nutritional, herbal, and environmental medicine have all been used in the management of patients with asthma. This paper reviews the evidence base for the use of these unconventional or complementary therapies. Although there is a paucity of large randomized, controlled trials in this area, there is sufficient evidence to suggest that many of these therapies can produce objective and subjective benefit in selected groups of patients. In view of the increasing popularity of complementary medicine among patients and general practitioners, there is now an urgent need for high-quality research to determine how, or whether, these therapies may be interwoven with the more orthodox treatments currently available.

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Asthma is one of the commonest chronic diseases in modern society and yet, despite the availability of highly efficacious drugs, there is increasing evidence to suggest that its incidence and severity are increasing (1). The prevalence of asthma has been estimated to be up to 10% in some populations (2), which translates into 2–3 million people suffering asthmatic symptoms each year in the UK. In a study of 7000 asthmatics in general practice, 40% of patients reported they were woken every night, and 70% reported being woken at least once a week by their asthma (3). In another study, 25% of asthmatics reported feeling breathless on most days of the week, while 60% of asthmatic children had been absent from school due to their asthma (4). It has been calculated that 25% of asthmatics require at least one emergency hospital admission for systemic steroids or nebulized bronchodilators each year (5). It has been further estimated that there are approximately 100 000 hospital admissions each year for asthma in the UK, 50% of these being for children under 15 years of age and 30% for children aged 0–4 years (6). Admission and death rates for this youngest age group have risen 124% between 1980 and 1985, and this trend is echoed by other age groups (6). Overall 2000 people die each year from asthma, and this figure

remains unchanged despite improved treatments and a greater understanding of the disease pathophysiology (7).

During the 1980s, the total number of prescriptions for asthmatic drugs almost doubled, and prescriptions for inhaled corticosteroids quadrupled. It is estimated that the disease currently imposes a financial burden on the UK's National Health Service (NHS) of about £400 million per annum. Over £80 million of this cost is due to hospital care. Therefore, more successful management of asthma in the community would offer very considerable savings for the NHS. In addition to the health-care costs, it is calculated that asthma costs the Department of Social Security £60 million in sickness benefit and costs the UK as a whole an estimated £350 million in terms of lost productivity (8).

During this period of increasing health and financial burden on the community due to asthma, there has been a rapid rise in the interest in and use of unconventional or complementary therapies by the general public (9–11). For example, between 1986 and 1991, the proportion of the consumers' magazine *Which?* readers using complementary medicine increased by 70% (11). This increased usage of complementary therapies has been borne out by a number of population surveys (12). For

example, a more recent *Which?* survey of nearly 9000 readers revealed that up to 25% had seen a complementary therapist in the previous year, and three-quarters felt that their condition improved as a direct result (13). Similarly, a telephone survey of 1500 adults in the USA revealed that 34% had seen a complementary therapist in the previous 12 months, largely for chronic conditions, and most of these consultations were paid for by the patients themselves (14).

In 1981, there were 13 million visits to alternative practitioners in the UK, which represents one-third of the number of visits made to GPs in general (15). In 1988, over £16 million was spent on homoeopathic treatments in the UK (15); in 1994, the estimated expenditure on "over the counter" alternative medicines in the UK was £60 million (13). In 1990, the estimate for expenditure on alternative medicine in the USA was \$13.7 billion (14). This growing interest in complementary medicine is not confined to the general public. A survey conducted in the UK in 1983 indicated that approximately 80% of trainee GPs wished to receive training in a complementary therapy (16), and, by 1987, this figure had risen to 92% (17). In 1986, it was reported that 38% of GPs in Avon, and 31% of GPs in Oxfordshire had received training in complementary therapy (18, 19). These figures were borne out by a recent UK survey commissioned by the Department of Health which studied 1226 general practices. This study found that 40% of general practices offered access to at least one complementary therapy, and in 21% of practices this was offered by one of the primary care team, usually the GPs themselves (20). In addition, there are presently three-quarters of a million homoeopathic consultations by physicians working within the NHS each year (15).

The evidence suggests that most patients visiting alternative therapists are white, well-educated, and affluent (14, 21). A recent survey of over 200 patients attending a large general practice, an acupuncture clinic, the British School of Osteopathy, or the Royal Homoeopathic Hospital reported that complementary medicine was seen as relatively more effective than orthodox medicine for chronic and minor conditions by those attending GPs, and as superior by those attending acupuncture and homoeopathic clinics (22). In addition, a strong belief in the importance of psychological factors in illness was associated with a stronger belief in the efficacy of homoeopathy and acupuncture.

Despite such widespread support and usage among the general public and their GPs, complementary therapies have not been adopted by mainstream medicine and have remained on the *fringe* of orthodox medical practice. This is largely

because of the paucity of well-conducted, randomized, controlled clinical trials of complementary therapy. Thus, two recent large reviews of the role of homoeopathy in clinical medicine concluded that, although there is a large body of data testing the efficacy of this complementary therapy, much of it was methodologically unsound (23, 24). As a result, the British Medical Association, the Royal College of Physicians, the Royal Society of Medicine, the European Parliament Committee on the Environment, Public Health, and Consumer Protection (CEPHCP), the House of Representatives (USA), and the WHO in its Global Strategy for Asthma have all highlighted the urgent need for more double-blind, placebo-controlled trials in this area (11, 25–29). A recent survey by the National Association of Health Authorities and Trusts suggested that the lack of information on the effectiveness of complementary therapies was the single most important factor affecting NHS funding of these therapies (30). The European Parliament CEPHCP has advocated that national social services should reimburse the cost of complementary medicine in line with orthodox medicine (28).

In the light of these recommendations, this paper considers the existing evidence base for the use of acupuncture, homoeopathy, herbal medicine, mind-body therapies, nutritional medicine, and dietary avoidance in the treatment of asthma.

## Acupuncture

Acupuncture has been widely used in the treatment of asthma, and in some countries nearly a quarter of GPs believe it to be efficacious (31). There are a number of uncontrolled trials assessing the use of acupuncture in the treatment of asthma (32, 33); however, this review will concentrate on the controlled studies. These fall into two classes: first, those of an experimental nature where only a single or small number of sessions of acupuncture were given and the short-term effects monitored; second, trials where a course of acupuncture was given and both short- and long-term effects were assessed.

Tashkin et al. compared classical acupuncture, sham acupuncture (needle insertion at incorrect sites), isoprenaline, saline, and no treatment in methacholine-induced bronchospasm in 12 patients with chronic stable asthma (34). On a wide range of objective measures of lung function (specific airway resistance, thoracic gas volume, and forced expiratory flow volume), the authors showed a significantly greater effect for real acupuncture over sham and saline, although isoprenaline was the most effective treatment. Isoprenaline is no longer used in the treatment of asthma, but was one of the treatments of choice in 1977. Interest-

ingly, saline and sham acupuncture were equally effective and more effective than no treatment, although this was not statistically significant. Similarly, Virsik et al. showed a significant increase in peak flow and forced expiratory flow volume and a decrease in airway resistance after a single session of acupuncture in patients with chronic stable asthma (35). Takishima et al. (36) and Yu & Lee (37) also reported significant improvement in lung function in acute asthma immediately after a single acupuncture treatment. Takishima et al.'s study involved 10 patients and Yu & Lee's 20 patients; unfortunately, no long-term follow-up was conducted after the single intervention with acupuncture. Two controlled studies have monitored the short-term effect after each of a series of treatments: positive results were reported by Berger & Nolte (38) but negative findings by Dias et al. (39). Neither of these studies addressed the question of long-term benefits.

While acupuncture has been shown to be beneficial in acute asthma in the short term, it has proven more difficult to demonstrate its efficacy in the management of chronic symptoms. For example, Tashkin et al. compared eight sessions of acupuncture with eight sessions of sham acupuncture in the management of chronic asthma (40). The treatment procedures were identical to those used in their previous study employing a single treatment session. The evaluation was blind to treatment and employed a crossover design in which all 25 subjects received both true and sham acupuncture with a 3- or 4-week interval between treatments (washout). A range of outcome measures was utilized throughout the study, including daily symptom scores, medication record, objective measures of lung function, patients' self-assessment of their condition, and physicians' findings before and after acupuncture treatment. In contrast to Tashkin et al.'s earlier study, the results failed to show a significant benefit for symptoms, medication use, or lung function with either form of acupuncture. Although the short washout period and crossover design could have obscured any delayed effect of true in comparison with sham acupuncture, the absence of any short-term benefit makes this unlikely.

Christensen et al. conducted a similar study in which the effects of 10 twice weekly sessions of acupuncture were compared with 10 sessions of minimal sham acupuncture (41). Seventeen patients with chronic stable asthma were treated, and daily self-ratings, measures of lung function, and serum IgE levels were measured. The results of the study indicated an effect, albeit modest, of acupuncture on both subjective and objective measures of asthma compared to sham treatment.

In the true acupuncture group, peak flow increased by 22% in the morning and 7% in the evening, while daily medication decreased by 53%. This group remained significantly improved throughout the period of the trial (11 weeks), although with diminishing gains over time. While the authors acknowledged that the effects on lung function were modest, there was a substantial effect on medication intake which may be valuable even in the absence of improvements in pulmonary function. It is unfortunate that the brief follow-up period (4 weeks) did not permit any conclusions about the value of acupuncture in reducing medication in the long term. Similarly, a small trial involving nine patients with extrinsic asthma reported a significant reduction in pharmacotherapy after acupuncture (42). A further study by Jobst (43) also came to similar conclusions. Here disabling breathlessness caused by chronic obstructive airways disease was evaluated on a single-blind, randomized, controlled basis, and real acupuncture was compared with sham acupuncture. Again, lung function showed a short-term improvement with a consequent decrease in the requirement for medication. However, yet again, the long-term outcome was not assessed. In contrast, a double-blind, placebo-controlled, crossover-designed study involving 15 chronic stable asthmatics treated twice weekly for 5 weeks failed to find any subjective or objective improvement in pulmonary function (44). Morton et al. showed some clear and valuable short-term response to laser acupuncture in exercise-induced asthma (EIA) (45).

All these studies must be interpreted with caution since they involved relatively small numbers of patients, involved a wide variety of experimental paradigms, and shared a number of methodological weaknesses (46, 47). Very few of the published trials have specifically assessed immunologic end-points, although reduced "leucocyte responsiveness" has been reported in one study after acupuncture (48). In addition, it is important to realize that in traditional Chinese medicine acupuncture would normally be used in conjunction with a wide range of herbal preparations for the treatment of asthmatic patients. In fact, studies that have assessed the use of acupuncture in China have reported a much greater degree of success than those in the West (49). Undoubtedly, further large studies will be required to evaluate the real effect of acupuncture in asthma, and it will be necessary, as part of these studies, to provide substantial treatment input and evaluate the long-term outcome in acupuncture-treated asthmatics.

In conclusion, the evidence to date suggests that acupuncture may be able to improve airway obstruction acutely, but its long-term efficacy has

yet to be established. In addition, acupuncture may be more effective in certain subgroups, such as drug-induced or allergic asthma rather than EIA (50).

## **Homoeopathy**

There have been three different homoeopathic approaches to the management of asthma. The first is classical homoeopathy in which the toxic symptoms of a particular herb or animal remedy are matched against the patient's symptoms and then the remedy is given in a very dilute form. This is single or classical homoeopathy, and involves a detailed history and a good memory in order to match the patient's symptoms with the key symptoms of a particular remedy (51).

The second approach utilizes complex homoeopathy: this involves medicines which contain a mixture of various herbal and homoeopathic products. There is a large volume of descriptive evidence that looks at both complex and classical homoeopathy, and many claims are made for the use of homoeopathy as a treatment of asthma in a wide variety of *materia medicas*. However, there is virtually no clinical trial evidence to substantiate these claims.

The third homoeopathic approach involves isopathy, which is a much simpler system. Isopathic theory suggests that a sufferer from hay fever should be treated with a homoeopathic dilution of pollens, treating like with like (23). This is also called homoeopathic immunotherapy (HIT) (52). A number of studies have been published on the use of homoeopathy in rhinitis, probably one of the most widely reported being that by Reilly et al., which demonstrated symptomatic improvements and a 50% reduction in patients' antihistamines requirements (53). A recent review of five double-blind, randomized, controlled trials involving the treatment of 350 patients suggested that HIT was effective in the treatment of rhinitis (24).

Based on the evidence in rhinitis, we can hypothesize that an isopathic approach – for instance, giving a small amount of house-dust mite to house-dust-mite-sensitive asthmatics – might have real validity in the management of asthma. Reilly et al. have provided some preliminary evidence to support this hypothesis (53, 54). In a meta-analysis combining data from rhinitis and asthma studies, Reilly et al. argued that the evidence to support HIT was unequivocal (54). Detractors have argued that although the second larger asthma study was a rigorously controlled and very carefully performed double-blind study, its power was limited by the small number of patients involved, and the major treatment effect was the patients' own per-

ception of their asthma rather than any objective measurements of lung function.

Therefore, although many claims are made by homoeopaths that classical homoeopathy can indeed help asthma, these claims have never realistically been put to the test. Some specific triggers causing lower and upper respiratory allergies have been studied, and HIT does appear to be more effective than placebo in these situations. Obviously, larger controlled studies are needed, and a replication of Reilly et al.'s provocative data would be a useful starting-point. Overall, the preliminary evidence suggests that homoeopathy may be of help in asthma, particularly if the trigger (e.g., house-dust mite, pollens, or moulds) can be clearly defined.

## **Food allergy and intolerance**

Wraith argues strongly that food allergy is a very important cause of asthma, and is often overlooked (55). Certainly, there is good evidence that tartrazine can provoke asthma in those with aspirin sensitivity (56) in addition to the well-established bronchoconstricting effects of acetylsalicylic acid (57). Similarly, the preservative sodium metabisulphite and biogenic amines, such as occur in yeast and cheeses, have been shown to provoke bronchoconstriction (58, 59). Wraith et al. suggest that patients showing multiple symptoms such as associated eczema or urticaria, a family history of allergy or food intolerance, and other atopic symptoms, may well have food intolerance. They argue that approximately 65% of patients with asthma will give a positive skin prick test (SPT) for inhalants and 39% for foods. However, some patients' breathlessness may be precipitated by food intolerance rather than food allergy, and therefore have a negative SPT and serum radioallergosorbent test (RAST) (60). By far, the most common food sensitivity isolated in asthmatic patients is milk, closely followed by egg, artificial colourants, and wheat. Wheat allergy is more common in older patients than in young asthmatics (55). There are four studies, all using slightly different methods, suggesting that food sensitivities might be relevant in asthma (57, 60–62). Wraith has suggested that food preservatives and colourants in particular may have a dramatic effect on asthma, which is reversible if these substances are avoided (55).

In an open, descriptive series of 265 patients with asthma, food additives played a significant part (60). The diagnosis of food sensitivity was substantiated by an improvement in peak flow based on appropriate avoidance. The treatment in this group of patients included continuous or intermittent inhaled or oral steroids and regular bronchodila-

tors. Appropriate food avoidance resulted in oral and inhaled steroid use dropping from 26% to 3%, and regular bronchodilators dropped from 44% of the study population to 20% (60). This suggests that appropriate food avoidance can significantly benefit a selected group of asthmatics. Furthermore, both extrinsic and intrinsic asthma appeared to respond to food avoidance, and the food sensitivities were usually multiple.

Radcliffe describes how food sensitivity may be diagnosed and food avoidance diets developed (63). Wraith et al. (59) have suggested that the use of oral sodium cromoglycate in asthmatic patients may well achieve its clinical effect by modifying the immune response to food in the gastrointestinal tract, an effect which in turn may modify the patient's asthmatic response.

While a minor part of patients' asthma may be secondary to specific ingested allergens such as tartrazine or metabisulphite, there is overwhelming evidence implicating house-dust mite as the major allergen. In addition, the evidence suggesting that food intolerance triggers asthma is based largely on descriptive work which, while interesting, is scientifically weak. The use of double-blind, placebo-controlled food challenge in the diagnosis of food intolerance is itself difficult and controversial; therefore, despite Wraith et al.'s strong arguments for food exclusion regimens to form part of the management plan for asthmatic patients, it is probably relevant only in a very small number of patients. Thus, a great deal more clinical research is required before Wraith et al.'s enthusiasm can be substantiated.

## Nutritional therapies

Nutritional therapies involve the use of various vitamin and mineral supplementation regimens. Some general guidelines in relation to nutritional therapies and bronchial asthma have emerged over the last decade (43). Two studies by Burney, one in 1986 and one in 1989, showed that a high sodium intake correlates closely with increased bronchial responsiveness to histamine (64, 65), suggesting that sodium restriction may be of value in some asthmatics.

Schwartz & Weiss suggested that increased vitamin C intake might be associated with a 30% lower incidence of active bronchitis and wheezing (66), and this assertion has received support from two thorough double-blind crossover trials (67, 68). However, some authors have found the opposite effect (68, 69).

The role of magnesium in asthma has also received attention. Allen (70) suggests there is no correlation between serum magnesium and asthma,

whereas Chyrek-Borowska et al. argue the contrary position (71). Other nutritional factors may be important: for example, the nutritional intake of fish oils (omega-3 fatty acids) may act to protect against asthma (66).

In conclusion, while some authors suggest a role for vitamins B and C or magnesium supplementation, sodium restriction, and the use of various essential fatty acids, the evidence supporting these suggestions is conflicting and unclear. Therefore, it is difficult to make a coherent clinical case for the use of nutritional medicine in asthma.

## Mind-body therapies (yoga and hypnotherapy)

The use of yoga in asthma has been investigated. Two studies are worthy of note. The first by Nagarathna & Nagendra involved 53 patients with asthma who were trained over 2 weeks in an integrated set of yoga exercises, including breathing, physical postures, and breath-slowing techniques, as well as in meditation (50). Patients in the treatment and control groups were equally motivated to take up yoga at randomization. Those randomized to the treatment arm were instructed to practise these techniques for 65 min every day and compared with a control group of 53 patients with asthma, matched for age, sex, and severity, who continued to take their usual drugs. Patients were followed up over a period of 6 weeks. There was a significantly greater improvement in the yoga group with respect to the number of asthma attacks per week, the use of asthmatic medication, and peak expiratory flow rate (PEFR).

A further study by Singh et al. came to a similar conclusion (72). This randomized, double-blind, placebo-controlled, crossover trial assessed the effects of two pranayama yoga breathing exercises on airway reactivity, airway calibre, symptom scores, and medication usage in patients with mild asthma. After a 1-week run-in period, the 18 patients with mild asthma practised slow, deep breathing for 15 min twice daily for 2 weeks. During this period, subjects were asked to breathe through a Pink City Lung Exerciser, a device which imposes slowing of the breathing and a 1 : 2 inspiration : expiration ratio; this is equivalent to pranayama breathing methods. During the control period, subjects were provided with a matched placebo device. Mean forced expiratory volume (FEV<sub>1</sub>), PEFR, symptom score, and inhaler use over the last 3 days of each treatment period were assessed in comparison with the baseline assessment. All patients entered improved more with the Pink City Lung Exerciser than with the placebo device, but the differences in this small study did

not reach statistical significance. However, there was a statistically significant increase in the dose of histamine needed to provoke the 20% reduction in FEV<sub>1</sub> (PD<sub>20</sub>) during pranayama breathing, but not with the placebo device. This study suggests that a simple device which effectively imposes a yoga breathing technique may help asthma. Whether these effects were brought about by the effect of yoga on endogenous glucocorticoid production (73), or on autonomic function (74) is unknown.

A range of other techniques which affect the mind/body interface, such as hypnosis, may also be of real value in asthma. For example, Isenberg et al. suggested that 35–40% of asthmatics may bronchoconstrict in response to suggestion or stress (75). Brown & Fromm have explored the mechanisms by which hypnosis may affect airway calibre (76). While stress and hypnosis can induce bronchoconstriction, the evidence that hypnosis can promote bronchodilation is less convincing. The early uncontrolled work in this area suggested that hypnosis could produce a reduction in morbidity and steroid usage in asthmatics (77, 78). This has been supported by a more recent controlled study which demonstrated the effectiveness of hypnosis in reducing the hospital admission rate, duration of stay, and need for systemic steroids in 16 subjects with inadequately controlled asthma (79). However, a larger multicentre study conducted by the British Thoracic Society was unable to confirm any subjective or objective benefit of hypnosis in 91 asthmatics (80). It has been suggested that the subjective improvement observed in studies of hypnosis in asthma may be detrimental, altering disease perception and encouraging asthmatics to underestimate the severity of their disease, thereby increasing their risk of sudden death.

A number of studies have reported improvements in airway calibre and blunting of the response to hypercapnia with hypnosis (81, 82). For example, Ewer & Stewart, in a prospective, randomized, controlled trial in 39 asthmatics treated with a 6-week course of hypnotherapy, reported a 75% reduction in bronchial hyperreactivity (BHR) to a standardized methacholine challenge, as well as a 41% improvement in symptom score, and a 26% reduction in use of bronchodilators. However, these improvements were only seen in the one-third of subjects with a high susceptibility score to hypnosis; the control group of 17 patients and the 10 patients with low susceptibility to hypnosis showed no change in the major outcome measures (83).

A number of studies have assessed the effects of suggestion on airway resistance after saline inhalation. One study reported that 10 out of the 29 hypnotized adults developed a greater than 20% increase in airway resistance after the suggestion

that they were inhaling increasingly potent doses of a bronchoconstricting agent (84). In contrast, Isenberg et al. were able to demonstrate only subjective improvements in airway function using this protocol (85). Janson-Bjerklie et al. demonstrated that those subjects responding to suggestion were not necessarily those who felt that their asthma could be emotionally triggered (86); rather, they were characterized as more emotionally labile, with more reactive airways (87). The validity of these studies has been questioned since inhaled saline is known to produce modest bronchoconstriction (88).

The effect of hypnosis on EIA has also been studied. Ten subjects with stable EIA were given hypnosis or sodium cromoglycate before exercise challenge. Exercise produced a 32% drop in FEV<sub>1</sub>. Pretreatment with just two 5-min hypnotic sessions attenuated this drop to 16%. Sodium cromoglycate was slightly more effective, attenuating the drop to 8% (89). Hypnotic induction may not be required to induce bronchoconstriction; simple suggestion alone may alter airway tone, and this effect can be reversed by placebo (90). The relaxation that occurs with hypnosis may itself be therapeutic. In a small study involving 11 subjects, Lehrer et al. demonstrated that training in relaxation techniques could reduce bronchial hyperresponsiveness to methacholine challenge (91).

In conclusion, there is good evidence to suggest that hypnosis, yoga, or simple relaxation can significantly improve airway calibre in some asthmatics. Childhood asthma is often quite responsive to hypnosis (92, 93), and this may be due to children's greater hypnotizability (94). Whether these techniques improve asthma by reducing anxiety, which is a well-recognized precipitant of acute bronchoconstriction, or whether they produce a real improvement in airway inflammation is unclear. Their benefit may be related to providing patients with a greater sense of control and involvement in their disease in much the same way as patients have been encouraged to take responsibility for the medication (95).

## Herbal medicine

A number of herbal medicines have been used in asthma, and some of these have been evaluated in controlled trials. *Coleus forskholii*, a herb used in Ayurvedic medicine, contains a molecule which has been shown to increase intracellular levels of cyclic adenosine monophosphate (96). Two studies have been published over the last decade which show that dry-powdered capsules containing *C. forskholii* have a powerful bronchodilating effect (97, 98) and fewer side-effects than fenoterol.

*Ginkgo biloba* has also been investigated; it contains several unique terpene molecules which have been shown to antagonize platelet-activating factor (PAF), hence limiting bronchial hyper-reactivity. Studies on ginkgolides show that oral administration improves pulmonary function and protects against EIA (99). A small double-blind, controlled study by Guinot also showed decreased bronchial hyperreactivity to nebulized house-dust mite (99). *Tylophora asthmatica* is another commonly used Ayurvedic herb. Studies in animals and large controlled, double-blind, crossover studies in man all show positive results from this herb (48, 100–102).

The effect of saiboku-to (TJ-96) on bronchial asthma has also been studied in some depth. Nakajima et al. report at length the steroid-sparing effects of this herbal preparation on 40 patients who took the remedy regularly for 6–24 months (103). Remarkable steroid-sparing effects were noted after saiboku-to had been taken for 6–12 months by steroid-dependent asthmatics. A number of physiologic changes also occurred in relation to ACTH, cortisol levels, and downregulation of  $\beta_2$ -receptor and  $\beta_2$ -agonist activity. The study was thorough and indicated few side-effects. Similar research by Homma et al. on saiboku-to involving nine patients who took the remedy over 1 year again showed quite dramatic clinical effects; Homma et al. suggest that the effects may be due to the magnolol fraction of saiboku-to (104). Saiboku-to is probably the best studied herb in relation to asthma, the evidence suggesting that further, more detailed clinical trials are quite definitely indicated.

A number of other herbs have been used in the treatment of asthma, but research on these has been poorly controlled, of low quality, and consequently of limited value. It is of interest that Shivpuri et al.'s studies on *T. asthmatica* reported frequent side-effects in the *Tylophora* group (48, 102). In the 1972 study, for example, 17% of the 103 patients involved reported side-effects such as nausea, partial diminution of taste for salt, and mouth soreness (102). Fifty-three percent of the 110 patients involved in the 1969 study reported some side-effects from the herbal preparation (48). This certainly proves that natural medicines are not necessarily always safe and free from side-effects, a fact emphasized by a recent letter to the *British Medical Journal* which suggests that steroids are being used in some so-called herbal preparations for the treatment of eczema (105).

## Conclusion

There is a reasonable volume of research on the use of unconventional therapies in asthma, some

of which has demonstrated a clear clinical benefit in selected groups of patients. The positive findings to date warrant further investigation in larger and better designed and controlled studies performed in sceptical centres of excellence. Until such a time as these studies have been performed, it would be premature to recommend any unconventional treatment as more than a potential adjunct to conventional treatment in patients whose symptoms are inadequately controlled or who have limited therapeutic options. The widespread popularity of complementary medicine emphasizes the urgent need for such research, if we are to make adequate recommendations to our patients and identify those who would benefit from a complementary medical approach. Most complementary therapies are cheap in comparison to conventional treatment and may help patients to develop a greater sense of control over their disease. Thus, an exploration of complementary therapies in the management of this condition will almost certainly be attractive to both patients and many doctors.

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