

Chinese Herbal Medicine in the Treatment of Asthma and Allergies

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"If evil air enters the nose during the accumulation of disease in the heart or lungs, nasal disease develops, either of chill lung or fever lung type."—*Su wen* (simple questions)

Introduction

Asthma was described in Nei Ching, The Yellow Emperor's Classic of Internal Medicine, which has been in existence for over two millennia. It has been called *shen-sou*, *hsiao-chuan*, *pa'o-hsiao*, and *ke-ni-shang-chi*, which are descriptions of the clinical presentation of the asthmatic patient (1). There is no equivalent Chinese terminology for chronic rhinitis, but it can be equated to conditions that describe the symptoms of chronic rhinitis. Some of the terms used include *Pi yang*, which indicates nasal obstruction, or *Pi Yuan*, which also incorporates nasal discharge, often of an unpleasant odor and being equivalent to pararrhinitis in deficiency of "lung vitality" and an infection of "chill toxin" (2). The equivalent of eczema in Chinese medicine, on the other hand, is also difficult to identify. Terms representing infiltrating sores (*chin yin chuang*), sores on the ears (*hsuan erh chuang*), sores on the hands (*koai chuang*), and so on have been used to describe the clinical condition that appears to be consistent with eczema (3). *Chin yin chuang* has been attributed to "excessive heat soaking the skin." Infantile eczema, called *nai hsien* or *tai lien chung*, has also been described in traditional Chinese medicine.

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The scientific rationale for the treatment of allergic or atopic disorders by traditional Chinese medicine has not been elucidated. There are a multitude of medications for treating asthma, allergic rhinitis, urticaria, and eczema. These are discussed in more detail in the following sections. Many of the preparations are mixtures of well known herbs with only partially complete characterization of components. This article attempts to make some sense of the enormous and often confusing gamut of experience that practitioners of Chinese medicine have gathered over the past several thousand years.

Asthma

As in Western medicine, Chinese medicine distinguishes between intrinsic and extrinsic causes of asthma. The emotional component of an asthma exacerbation is probably more strongly stressed in Chinese medicine. The seven emotions that cause asthma are anxiety, anger, sorrow, pleasure, fright, pensiveness, and brooding (1). As in Chinese medicine, Western medicine has currently very incomplete knowledge of the biochemical basis for the relationship between the psychological state of the patient and clinical manifestations of an asthma attack, although peptide neurotransmitters, such as substance P and vasoactive intestinal peptide (VIP), are believed to play a significant role.

Most herbal preparations contain several components. Of the many formulas used in Chinese medicine to treat asthma (Table 1), some of the more common preparations include ma huang, magnolia, and Minor Blue Dragon combination and Scute. Although there is little available literature on the complete breakdown of the subcomponents of these various preparations (which are often components of more complicated mixtures), several active ingredients are known.

The herb ma huang (*Ephedrae herba*) is derived from the stem of *Ephedra sinica* and related species. It contains L-ephedrine, which is a sympathomimetic (4,5). Other active ingredients include L-methylephedrine, L-norephedrine, D-pseudoephedrine, D-N-methylpseudoephedrine, and D-norpseudoephedrine (4). Other effects of ma huang include vasoconstriction and mydriasis. The total alkaloid content in ma huang is 0.3–1.5%. The typical dose for asthma is 2–5 g of the herb (4). It is also useful in treating hay fever, tracheitis, cough, hemorrhage, circulatory collapse, and shock, and is used in ophthalmology to dilate the pupil.

The effectiveness of Minor Blue Dragon combination in the treatment of asthma has been studied but the studies are subjective, and were not prospective, double-blinded, or placebo controlled (6). The components of Minor Blue Dragon combination include pinellia, licorice, asarum, ginger, cinnamon, ma huang, and paeonia (7). Licorice contains several terpenoids and is effective as a cough suppressant (4).

Table 1
Chinese Herbal Medications Used in the Treatment of Asthma

Atractylodes and cardamon combination
Atractylodes combination
Blue Dragon combination
Bupleurum, chih-shih, and platycodon combination
Bupleurum, ginger, and cinnamon combination
Bupluerum and Scute combination
Cinnamon and hoelen formula
Cinnamon, persica, and moutan formula
Cinnamon and six-herb combination
Ginseng and ginger combination
Gypsum and apricot seed combination
Hoelen, magnolia, and apricot seed combination
Hoelen and schizandra combination
Kan-Lin
Licorice
Licorice and ginger combination
Licorice and ma huang combination
Ma huang
Ma huang and apricot seed combination
Ma huang, apricot seed, and morus combination
Ma huang, apricot seed, and ophiopogon combination
Ma huang and asarum combination
Ma huang combination
Ma huang and gypsum combination
Ma huang and licorice combination
Ma huang, licorice, and apricot seed combination
Ma huang and magnolia combination
Ma huang and morus formulation
Meretrix combination
Minor Blue Dragon combination with apricot seed
Minor Blue Dragon combination with apricot seed, gypsum, pinellia, and magnolia
Major Bupleurum combination
Minor Bupleurum combination
Morus and platycodon combination
Ophiopogon combination
Perilla fruit combination
Perilla and mentha combination
Pinellia
Pinellia and hoelen combination
Pinellia and magnolia combination
Platycodon and fritillary combination
Pueraria combination
Pueraria, coptis, and Scute combination
Sheng-ke-tang
Siler and platycodon formula
Stephania and ginseng combination
Tea fruit combination
Trichosanthes and chih-shih combination with morus and perilla fruit
Wen Yang pills

Table 2
Components and Their Observed Effects
of a Modified Minor Blue Dragon Combination—Components
of *Kami-Sochong-yong-Tang*^a

No.	Component	Observed effect	Quantity
1	<i>Mori radicis cortex</i>	Cough suppression	8 g
2	<i>Ephedrae herba</i>	Bronchorelaxant, increased sweating, relief of bronchial muscle spasms	6 g
3	<i>Paeoniae radix</i>	Decreased sweating, sedative	6 g
4	<i>Schizandrae fructus</i>	Cough suppression, mucolytic	6 g
5	<i>Pinelliae tuber</i>	Mucolytic	6 g
6	<i>Asari radix</i>	Analgesic, sedative	4 g
7	<i>Zingiberis rhizoma</i>	Vasodilator, bronchodilator	4 g
8	<i>Cinnamoni ramulus</i>	Antipyretic, analgesic, mucolytic	4 g
9	<i>Trichosanthis radix</i>	Cough suppressant, relieves dry mouth	4 g
10	<i>Platycodi radix</i>	Mucolytic, cough suppressant	4 g
11	<i>Poria (hoelen)</i>	Polyuria, sedation	4 g
12	<i>Armeniacae semen</i>	Cough suppression, mucolytic	4 g
13	<i>Fritillariae bulbosus</i>	Cough suppression, mucolytic	4 g
14	<i>Liriopsis tuber</i>	Antipyretic, cough suppressant, mucolytic, increased urination	4 g
15	<i>Polygalae radix</i>	Anxiolytic, cough suppressant	4 g
16	<i>Glycyrrhizae radix</i>	Sedation, mucolytic	4 g

^aModified from Kang (8).

Pinellia, like ma huang, contains ephedrine as well as β -sitosterol- β -D-glucoside and 3,4-diglycosilic benzaldehyde (4). Cinnamon contains cinnamic aldehyde and cinnamic acid, with antibacterial effect. Peony and asarum also have antibacterial and analgesic effects. Ginger is known to contain zingiberol, zingiberene, monoterpene, and sesquiterpene (4). These materials are believed to have antitussive properties. Minor Blue Dragon combination is also prescribed in combination with Minor Bupleurum Combination, which contains Scute (4). The other components of Minor Bupleurum combination include pinellia, jujube, ginseng, licorice, and fresh ginger. Four of the six components of this preparation are common to Minor Blue Dragon combination. Scute contains flavinoids that are believed to be analogous to disodium cromoglycate. This will be discussed further in the section on allergic rhinitis.

A modified version of Minor Blue Dragon combination adds several components to the existing preparation (8). The resulting preparation contains a total of 16 herbal plants. When one compares these components to other preparations described there is a great deal of overlap. The components are listed in Table 2 with the corresponding

observed action. Again, there are frequently several components that relieve the same symptoms, suggesting that traditional Chinese medications involve a great deal of synergistic activity, though this has not been proven.

Traditional Chinese medicine has made the observation over the years of a link between asthma and "water imbalance." A condition called "deficiency of kidney" is described in the literature, and this includes symptoms of backache, impaired hearing or tinnitus, hair loss, loose teeth, and sexual dysfunction (9). It is also interesting to note the observed link in traditional Chinese medicine between the kidney and the ear.

Fourteen patients with nephrotic syndrome were described in a study attempting to find a reason for the link between renal disease and asthma (10). The renal disease was diagnosed by kidney biopsy. Asthma was diagnosed by fixed impairment of forced expiratory volume (FEV)/forced vital capacity (FVC) ratio. All of the 14 patients with nephrotic syndrome had abnormal FEV/FVC ratios. Radial artery sphygmography showed a distinctively characteristic pulse wave. The authors suggest that radial artery sphygmography is a good way to diagnose intrinsic asthma. Unfortunately, more is made of the observation than is scientifically justifiable.

Two other herbal preparations, Wen Yang Pill and Kan-Lin, have also been used to treat asthma. Wen Yang Pill also has been linked to a "deficiency of the kidney" as a rationale for successful treatment of asthmatics, and the Wen Yang Pill is an example of a "Kidney Reinforcing Regiment (KRR)" commonly described in traditional Chinese medicine. Specifically, Wen Yang Pill contains aconite, rehmannia, Chinese yam, epimedium, psoralea, and dodder. Although the mechanism of action of each of these components in the treatment of asthma is not known, several effects on the immune system were noted in patients treated with Wen Yang Pill. Clinically, in a placebo-controlled study, Wen Yang Pill was found to have a significantly greater improvement in the subjective clinical symptoms of a group of 365 asthmatic subjects over placebo (11). In addition, Wen Yang Pill inhibited the fall seasonal increase in serum IgE level, which was found to occur in asthmatic patients in China. An attempt was made to relate the changes in serum IgE levels to clinical improvement in 50 patients on Wen Yang Pill, and a significant difference was noted after analysis with Wilcoxon rank testing. In the same study, Concanavalin A-induced T-cell suppressor function was also found to be inhibited in a group of 41 asthmatic patients taking Wen Yang Pill when compared with placebo.

Kan-Lin preparations are a set of herbal medication combinations with different components (12). Most of the Kan-Lin preparations contain *Rehmanniae radix*, *Poria*, and *Pinelliae tuber*, but the other compo-

nents are very varied (Table 3). The use of Kan-Lin preparations in asthma was associated with an improvement in several typical symptoms of allergy-mediated asthma, including sneezing, dry throat, nasal itching, morning or night cough, as well as nasal obstruction. In addition, there was normalization of serum IgE levels and peripheral eosinophil count in 30 and 22 asthmatic patients, respectively. However, these studies were not controlled. Side effects noted with Kan-Lin preparation included bloating and loose stools (12).

Acupuncture in Asthma

Acupuncture has been used in asthma with varying success (13). Although benefit has been demonstrated in some patients, others have experienced increased bronchial secretions. The pathophysiological mechanism of acupuncture in asthma is not clear. One suggested mechanism is through stimulation of adrenocorticotrophic hormone, vasoactive intestinal peptide (VIP), or endorphins, which subsequently lead to increased secretion of adrenocorticoids and increased steroid production. VIP itself has been shown to be a potent vaso- and bronchodilator. In addition, acupuncture may decrease stress and indirectly diminish the severity of attacks, principally by inducing general relaxation. The effects of acupuncture are most evident at one half hour after stimulation of specific acupuncture loci on the thoracic wall and along the "lung-channel." These effects include decreased airway resistance, decrease in sputum viscosity, analgesia and improved sleep patterns. There are also two other points, one of which is on the ear lobe. Acupuncture was also shown to be beneficial in the treatment of 50 patients with silicon dust-induced asthma, with increases in FVC of 23–131% depending on the acupunctural point chosen, in this case point Ren 22 (14). In this study, there was also a 20% increase in total serum immunoglobulin levels in the patients following acupuncture.

Allergic Rhinitis

In traditional Chinese medicine, allergic rhinitis is part of a condition, which includes nasal obstruction, congestion, discharge, polyps, and nosebleeds. Folklore places great emphasis on "wind-chill" as a cause of rhinitis. Thus, the rationale has been to treat rhinitis with a medication that warms the lungs and disperses wind chill. A list of these medications is shown in Table 4. Some of the medications are equivalent to those used to treat asthma, suggesting a "nonspecific" sympathomimetic action at various sites of the body.

Minor Blue Dragon combination is used to treat allergic rhinitis as well as asthma. As mentioned above, one of the components of Minor Blue Dragon combination is ma huang. Schizandra has been extensively

Table 3
Components of Kan-Lin Preparations^a

No. 1	No. 2	No. 3	No. 4	No. 5A	No. 6A
<i>Ginseng radix</i>	<i>Panax quinquefolli radix</i>	<i>Panax quinquefolli radix</i>	<i>Rehmannia radix</i>	<i>Fritillariae Bulbus</i>	<i>Cervi parvum cornu</i>
<i>Astragali radix</i>	<i>Rehmanniae radix</i>	<i>Codonopsis radix</i>	<i>Eryobotryae folium</i>	<i>Cordyceps</i>	<i>Panax quinquefolli radix</i>
<i>Poria</i>	<i>Asparagi radix</i>	<i>Astragali radix</i>	<i>Cyclinae concha</i>	<i>Homonis placenta</i>	<i>Juglandis semen</i>
<i>Angelicae radix</i>	<i>Moutan radicle cortex</i>	<i>Atractylodis rhizoma</i>	<i>Moutan radicle cortex</i>	<i>Perillae ramulus</i>	<i>Aconiti tuber</i>
<i>Pinelliae tuber</i>	<i>Dioscoreae rhizoma</i>	<i>Poria</i>	<i>Gentianae</i>		
<i>Citri reticulatae pericardium</i>	<i>Schizandrae fructus</i>	<i>Pinelliae tuber</i>	<i>scabrae radix</i>	<i>Mori cortex</i>	
<i>Glycyrrhizae radix</i>			<i>Menthae herba</i>	<i>Bupleuri radix</i>	
	<i>Astragali radix</i>	<i>Citri reticulatae pericardium</i>	<i>Scutellariae radix</i>		
<i>Codonopsis radix</i>	<i>Eriobotryae folium</i>	<i>Ziziphi fructus</i>	<i>Astragali radix</i>		
<i>Ziziphi fructus</i>	<i>Asini gelatinum</i>	<i>Zingiberis rhizoma</i>	<i>Pinelliae tuber</i>		
<i>Zingiberis rhizoma</i>	<i>Atractylodis rhizoma</i>		<i>Glycyrrhizae radix</i>		
<i>Atractylodis rhizoma</i>	<i>Poria</i>				
	<i>Anemarrhenae rhizoma</i>				

^aModified from Wang et al. (12).

Table 4
Chinese Herbal Medications Used in the Treatment of Allergic Rhinitis

Medication	Components	Effects
Xanthium formula	Xanthium, magnolia flower, angelica, agastache, acorus, Scute, mulberry, field mint, decocted gypsum	Mast cell degranulation inhibitor
Ma huang combination	Mahuang, cinnamon, peony, siler, magnolia, xanthium, black plum, licorice	Sympathetomimetic
Imperata and polygonatum combination modified	Rhemannia, halitosis, oyster shell, decocted gypsum, scrophularia, tang sheng, mulberry, ophiopogon, scute, licorice	Nourishes yin
Ginseng and perilla combination	Tang-sheng, platycodon, pueraria, hoelen, pinellia, perilla, peucedanum, citrus, licorice, ginger, jujube	
Tang-kuei and peony formula	Peony, hoelen, alisma, scute tang-kuei, whete peony, cnidium, field mint, magnolia flower, cicada	Mast cell degranulation inhibitor
Turtle shell and cistanche combination	Land tortoise shell, rehmannic, cistanche, anemarrhena, phenodendron, psoralea, dried earthworm, schizandra, deer horn, scorpion	Supplements renal vitality, for swelling, and severe itching
Hematit and aster combination	Hematite, disocorea batatas hoelen, alisma, peony, aster, dolichos, cicada, coptis, jujube	Strengthens the spleen
Minor Blue Dragon combination	Pinellia, licorice, asarum, ginger, cinnamon, ma huang, and paeonia	Sympathetomimetic, cough suppressant
Jade screen powder	Astragalus, ledebouriella astrotylodes, ginger	Effective in symptom resolution phase

studied. It contains schizandrins with hepatoprotective, anti-oxidant, and antibacterial effects. These are two other components of Minor Blue Dragon combination in which there is preliminary evidence to suggest an effect on IgE levels in some cases (15). An anticomplement activity has been attributed to cinnamon (16), and several other components, including peony, pinellia, and Schizandra have been mentioned in terms of their ability to inhibit type IV delayed hypersensitivity reaction, though no hard data can be found.

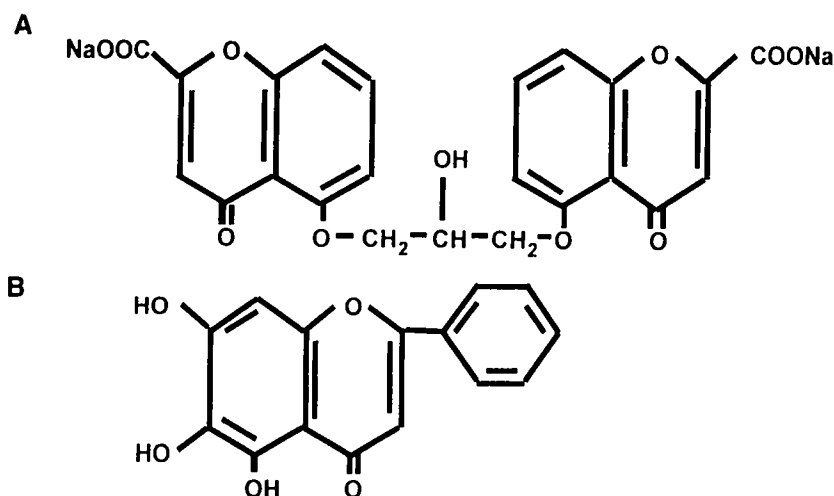


Fig. 1. The top molecule is disodium cromoglycate (DSCG), and the bottom one is baicalein. Baicalein inhibits 15-hydroxyprostaglandin dehydrogenase (15-OH-PGDH), a decomposing enzyme of prostaglandin E1 and E2. The mechanism is identical to DSCG.

Table 5
Preparation Containing Scute

Minor Bupleurum combination
Major Bupleurum combination
Rehmannia combination
Coptis and Scute combination
Tang-kuei
Gardenia combination

In combination with Minor Blue Dragon combination, Minor Bupleurum combination has also been used, as is the case in asthma. The latter primarily contains Scute, which has an activity similar to that of disodium cromoglycate. Scute contains a variety of flavinoids, including baicalein, which appears to be a mast cell degranulation inhibitor. The structure of Baicalein is shown in Fig. 1, and is compared with that of disodium cromoglycate. Table 5 illustrates a list of preparations that contain Scute.

The treatment of allergic rhinitis is divided into stages. The acute stage can be treated by Minor Blue Dragon combination, or by magnolia and gypsum combination. During periods of relative disease inactivity, i.e. periods not corresponding to the patients "allergy season," jade screen powder or ginseng and astragalus combination can be used as prophylactic therapy. During the chronic stage, such as in patients with perennial allergies, Rehmannia Eight Formula plus curculigo, epimedium, or morinda is used (15).

Table 6
Herbs with Anti-Inflammatory Activity

Chemicals or herbs with inhibitory effects on the release of mediators from mast cells	Herbs with inhibitory action of phosphodiesterase
Scute	Scute
Disodium cromoglycate	Santine derivatives
Ma huang	Perilla leaves
Jujube	
Cinnamon	
Pueraria	
Magnolia flower	
Asarum	

In addition, the following components of various herbal preparations mentioned above have been said to have antihistamine activity. These include asarum, ma huang, magnolia bark, ginseng, and ginger. Although this is quite possible, given the wide range of chemical substances in these herbs, no studies have been found to support this assertion. In Western medicine, emphasis has recently been placed on the prevention of allergies with anti-inflammatory medications. Herbs with anti-inflammatory activity are shown in Table 6.

Eczema

In Chinese medicine, several entities are described as sores occurring on different parts of the body, including the ears, hands, and legs. It is interesting to note that although eczema has been described in both Chinese and Western medicine, historically more emphasis has been placed on the hand eczema in Chinese medicine than Western medicine, until recently. Eczema has been attributed to the wind, heat, and moisture.

Dryness is a common symptom. The treatment of eczema by Chinese medicine depends on whether or not the rash is considered to be acute or chronic. The acute rash can be described as erythematous, with blisters or pustules and often containing yellow fluid or crusts. Gentiana combination (*Lung-tan-hsieh-kan-tang*) with water along with Calcite and Phyllodendron formula (*Hsin-san-miao-san*) are used as a moisturizing agent. Gentiana combination has also been used with tang-kuei and cicada. More potent moisturizing agents include modified hoelen and magnolia combination. These contain magnolia bark, citrus, Poria (hoelen), alisma, capillaris, fraxinella, and polyporus in a water base. The chronic rash appears as thickened and coarse skin often involving hyperpigmentation with clear-cut margins, and tongue changes (described as a ruddy tongue with thin yellow fur). Both acute and the chronic rash are associated with pruritis.

Chronic eczema is treated with Calcite Five formula (*Wu-shih-san*), which contains calcite, gypsum, borneol, kaolin, and zinc-bloom in a honey base. This is applied topically. Alternatively, Tang-kuei Four combination (*Szu-wu-tang*) which contains 12.0 g of kochia, 9.0 g each of siler, tribulus, and atractylodes, and 6.0 g of cicada, can be taken internally.

The treatment of infantile eczema includes, in addition to the above materials, *Wu-pao-san* (Stalactite and Pearl formula), which contains stalactites, cinnabar, pearls, berneol, amber, and *fei-lo-mein*. In addition, curiously, the treatment of eczema by traditional Chinese medicine seems to vary depending on the site of the eczema. For example, eczema above the waist is treated with a combination of mulberry leaves, wild chrysanthemum, and cicada. For eczema of the middle part of the body, gentiana and gardenia are added.

Does the treatment of eczema by Chinese medicine really differ from Western medicine, or are we actually all using the same active ingredients? Because of the lack of knowledge of the actions of the ingredients found in Chinese herbal medications, this is difficult to answer. It is likely that many of the ingredients are emollients. Some might be anti-inflammatory. Although it is known that many Chinese preparations do contain steroids, none of the medications that are used to treat eczema appear to. One of the preparations contains mercury. Overall, there are numerous herbal medications used in the treatment of eczema, and the efficacy of all of these is unknown. Most of the herbal medicines are also used to treat other conditions as well. The components of combination herbal preparations in the topical treatment of eczema in Hong Kong are listed in Table 7.

Substantial interest by British investigators in the value of Chinese medicine in eczema was prompted by the apparent efficacy of a herb decoction prescribed by a Chinese practitioner of Chinese medicine in London in the treatment of a large number of children with atopic eczema (17–19). At least two double-blinded placebo-controlled crossover studies were produced, based on a prescription developed in collaboration with the Chinese practitioner. A common herbal preparation containing *Ledebouriella seseloides*, *Potentilla chinensis*, *Akebia clematidis*, *Rehmannia glutinosa*, *Paeonia lactiflora*, *Lophatherum gracile*, *Dictamnus dasycarpus*, *Tributes terrestris*, *Glycyrrhiza uralensis*, and *Schizonepeta tenuifolia* has been found to be beneficial in 80% of patients treated by practitioners of traditional Chinese medicines (20). The combination of the 10 herbs in the preparation represents the key herbs selected from mainly three classical prescriptions: Qingre Lishi prescription, Huanban Sanyu prescription, and Fangfeng Tongsheng prescription. *L. seseloides* and *D. dasycarpus* are the most important elements, according to the Chinese practitioner in a television documentary produced by the British Broadcast Corporation in 1993.

Table 7
Components of Chinese Herbal Medications
Used in the Treatment of Eczema

Herbal component	Other topical and nontopical uses
<i>Pinus massonia</i> Lamb	RA, hypertension
<i>Polygonum chinense</i> Linn	Dysentery, enteritis, tonsillitis, pharyngitis, diphtheria, pertussis, hepatitis
<i>Portulaca oleracea</i> Linn	Dysentery, acute enteritis, acute appendicitis, mastitis, hemorrhage
<i>Prunus persica</i> (lin.) Batsch	Dysmenorrhea, amernorrhea, contusion, hematoma, constipation, malaria, ascitis, constipation
<i>Glochidion eriocarpum</i> Champ.	Enteritis, dysentery, contact dermatitis, pruritis, urticaria
<i>Ricinus communis</i> Linn.	Prolapsed uterus or rectum, dystocia, retained placenta, facial nerve palsy, pyodermas, tuberculous adenitis, epilepsy, schizophrenia
<i>Vitex cannabifolia</i> Sieb	Influenza, malaria, enteritis, dysentery, genitourinary tract infections, asthma (fruit), malaria, hepatitis, bronchitis (roots and stem)
<i>Sambucus javanica</i> Reinw.	Fractures, rheumatism, nephritis, contusions
<i>Xanthium sibiricum</i> Patrin.	Influenza, headache, sinusitis, malaria, rheumatoid arthritis, uterine bleeding leprosy
<i>Senecio scandens</i> Buch.	Appendicitis, dysentery, URI, tonsillitis, sore throat, enteritis hemorrhoids, acute lymphangitis, scarlet fever, furunculosis
<i>Emilia sonchifolia</i> Linn.	Influenza, fever, URI, sore throat, oria ulcers, pneumonitis, enteritis, dysentery, genitourinary tract infection, mastitis, orchitis, wound infections
<i>Eclipta prostrata</i> Linn.	Hematemesis, epistaxis, hematuria, melena, uterine bleeding, chronic hepatitis, enteritis, dysentery, tinnitus tinea, rice field dermatitis
<i>Smilax glabra</i> Roxb.	Brucellosis, syphilis, nephritis, cystitis, mercury and silver poisoning
<i>Chenopodium ambrosioides</i> L.	Hookworm, roundworm, threadworm infestations, ringworm, head louse
<i>Euphorbia Hirta</i> L.	Bacillary dysentery, amebic dysentery, acute enteritis, indigestion, enteric trichomoniasis, chronic bronchitis, pelitis, nephritis
<i>Euphorbia thymifolia</i> L.	Bacillary dysentery, enteritis, diarrhea, bleeding hemorrhoids
<i>Sapium discolor</i> Muell.	Constipation, oliguria, nephritis, edema, cirrhosis, ascites
<i>Jatropha curcas</i> L.	Leprosy, trichomonal vaginitis, chronic ulcer

(continued)

Table 7 (continued)

Herbal component	Other topical and nontopical uses
<i>Jussiaea repens</i> L.	Colds, fever, coughs, oliguria, breast abscess, parotitis, herpes zoster
<i>Gelsemium elegans</i> Benth.	Tinea, hemorrhoids, scrofula, boils and pyodermas, leprosy
<i>Asclepias curassavica</i>	Mastitis, boils and pydermas, dysmenorrhea, fractures, cuts
<i>Clerodendrum inerme</i> Gaertn.	Rheumatic arthritis, sciatica, lumbago, gastritis, colds, fever, malaria, hepatitis, hepatosplenomegaly
<i>Ruta graveolens</i> Linn	Colds, fever, infantile convulsion, epigastric pain, hernia pain, toothache, irregular menses, anemorrhea, pyodermas, snake and insect bites
<i>Phyllanthus emblica</i> L.	Antipyretic, anti-inflammatory, throat soothing, antitussive
<i>Adenosa glutinosum</i> Druce	Rheumatic arthralgia, stomachache, snake bite, pyodermas, urticaria
<i>Rhinacanthus nasutus</i> Kurz.	Pulmonary tuberculosis, cough, acute and chronic bronchitis, ringworm
<i>Oxalis corniculata</i> L.	Colds, fever, hepatitis, enteritis, UTI, urinary calculi, hypertension
<i>Abrus precatorius</i>	Tinea, scabies, pyodermas, bronchitis
<i>Cassytha filiformis</i> L.	Colds, fever, malaria, nephritis, edema, UTI, urinary calculi, acute hepatitis, hemoptysis, epistaxis, hematuria

As a result, two separate studies, one in adults and one in children, were undertaken (20,21). In each of the studies, approx 40 subjects were recruited. These were patients with relatively severe eczema not just confined to the flexural sites. The medications were taken orally. Each subject was included in a 4-wk run-in period, and then treated with active treatment and placebo in random order for 8 wk. There was a washout period in which it was found that eczema scores returned to baseline by the beginning of the second treatment period. The preparation was standardized by atomic absorption spectrophotometry as much as possible. Patients were evaluated with respect to severity and location. A significant improvement was found in the active treatment group by 4 wk, both in severity and extent. There were no changes in eosinophilia and serum IgE during treatment in either of these two studies. These studies have been most convincing in demonstrating the efficacy of Chinese medications. This preparation is now manufactured by Phytopharm Limited (Hornsea, East Yorkshire, UK), under the brand name of Zemaphyte, and made available on prescription. A cor-

roborative study on Zemaphyte is being undertaken in the UK and Hong Kong (22).

The combination and proportion of the herbs in Zemaphyte and the choice of patients appear to be crucial. A subsequent study in which the component *P. chinensis* was deleted from the prescription was performed on eight patients with intractable atopic dermatitis (IAP) and two patients with moderate atopic dermatitis (MAP, <20% of the body surface involved) (23). Six of the eight IAP patients dropped out of the study in the first week because of exacerbation of their dermatitis and a preference to resume topical steroids and oral antihistamines, especially those with active exudation and infection. The remaining two patients with IAP had less itching and slept better in the first 2 wk, but their symptoms then became worse and they finally gave up the treatment. The two MAP patients responded favorably to the herbal medicine and have not used any topical steroids since (about 2 mo). The reason for the difference in the results of the two studies appears to be patient selection. In the earlier study, great care was taken to ensure that all subjects had nonexudative and noninfected eczema. Moreover, the doses, proportions, and number of herbs chosen in the second study were different. The omission of *P. chinensis* in the latter study might have reduced the efficacy of the formulation. Indeed, this herb is quite commonly used in Hong Kong and southern China under the name *Tsu-tsao-jung*, but is not known to be popular in other provinces in China. Very little information is available on the chemistry and bioactivity of this herb.

As far as the remaining contents of the preparations, licorice (*Glycyrrhiza uralensis*), which has previously been shown to have some anti-inflammatory activity, was present in both active treatment and placebo preparations, partly because the taste would be difficult to disguise, and also because it was not regarded as a beneficial ingredient. However, glycyrrhetic acid in licorice has been shown to potentiate the effect of topically applied hydrocortisone (24). Of the other components, *L. seseloides*, *R. glutinosa*, *P. lactiflora* also have anti-inflammatory activity, whereas *L. sesaloides* and *P. chinensis* have antibacterial activity. *L. sesaloides* also has sedative properties. It has been suggested that paeonol isolated from paeonia is an active compound in the prescription (25). But it is not even certain whether paeonol is a constituent of *P. lactiflora*, the species used in the prescription (26).

The effect of the prescription is usually temporary, and once the treatment is stopped, most patients will relapse. Even if the treatment is continued, its effectiveness often wears off after a period of around 6–12 mo (26). Patients with partial relief from severe eczema are known to have been placed in a maintenance regimen with reduced usage of the preparation.

There were no short-term side effects noted in the aforementioned studies, except only mild adverse effects, i.e., abdominal distension and headaches (2 patients) and eosinophilia at the beginning and end of the study (24 patients). Two of the patients in a 1-yr followup study (27) were found to have reversible abnormalities of liver enzyme while taking the Chinese herbs (27). The abnormal liver function tests in the two patients, however, could not be firmly ascribed to the regimen (28), especially since minor abnormalities of liver function might be present in children with severe atopic eczema alone (29,30). The corroborative study just completed in Hong Kong also did not find any adverse affects (Look, P., personal communication). Long-term side effects have not as yet been studied, but the absence of a corticosteroid component in any of the medications used at least rules out any possibility of cushinoid adverse effects.

Discussion

The effectiveness of traditional Chinese medicine to treat asthma has probably been fairly well demonstrated by the continued success of herbal and acupunctural methods, which have been developed over the past two thousand years. There have been numerous recent attempts to study the biochemical and physiologic basis for these modes of therapy. This has involved the study of the components of the various herbs used in the treatment of asthma as listed above. Unfortunately, the isolation of active ingredients in herbs has been incomplete, and the rationale for the success of different medications has been remarkably speculative. This is also true for Chinese herbal preparation used in the treatment of eczema. There is much skepticism from Western clinicians on the value of Chinese medicine, especially when there are cases of hepatotoxicity or even death in patients taking Chinese herbs from various sources for eczema and other diseases (31–33). Unfortunately, whether or not the herbal preparation was responsible for the side effects could not be substantiated in these anecdotal cases. There was often either no crosschecking on what actually was given to the patients, no investigation of possible misidentification of the herbs (34), and no scientifically valid followup study to verify the observation. This left unanswered the possibility of erroneous substitutions, which may have led to serious toxicity in other poisoning cases (35–38). Another problem that obscures the potential value of Chinese medicine is the fact that some practitioners supply "herbal creams," which are found to contain potent topical steroid ointments (39,40). Monitoring of plasma cortisol concentrations and urinary steroid profiles in the patients involved in the aforementioned studies did not show abnormal cortisol variation, extra peaks, or any suppression of adrenal metabolites in gas chromatographic analysis (17).

Furthermore, most of the studies do not utilize the concepts of control populations and biostatistical methodology. None of the studies are double blinded, and very few are placebo controlled. The evaluation of efficacy is usually subjective, and when an objective parameter has been measured, such as pulmonary function testing, the data have not been statistically analyzed. Even the most skeptical minds must agree that Chinese medicine somehow works; if not completely, then at least it can alleviate some of the symptoms of asthma. After all, even Western medicine is still often times more of an art than a science. We often do things without complete knowledge of the underlying theories, but only because experience tells us that such things work. However, the lack of good scientific studies of Chinese herbal medicine does little to enlighten us and stalls progress in our understanding of the underlying mechanisms of the disease.

Attitudes of Western investigators to the value of Chinese medicine in eczema are very diverse. Some clinicians, including those advocating the use of "experimental" Western pharmaceutical agents, such as cyclosporin, claim that it is unethical to continue clinical trials on Chinese herbal medicines unless more is known about the pharmacology of the materials under investigation (33). Others are more open-minded, but suggest that such treatment with Chinese herbal medications should be restricted to patients with severe eczema unresponsive to conventional treatment (26). Proper regulation and registration of the practitioners and of the authenticity and quality of the herbs are an important first step toward an understanding of the action of Chinese medications in allergy and asthma (26,35). Subsequently, good scientific methodology applied to Chinese herbal medicine is what is most desperately needed in order to further our knowledge of the disease and its treatments. Such studies may even introduce to Western medicine new modes of therapy or guide us in the development of new drugs. In addition, as has been suggested by several investigators, perhaps a merging or combination of Chinese and Western medicine can be achieved to some extent with better understanding of the mechanism of action of both Chinese and Western drugs.

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