

Chinese herbal medicines

In this article, we discuss the history and use of Chinese herbal medicines, the Chinese medicine framework for understanding mental illness, and some concerns surrounding patients' use of traditional Chinese medicines.

HISTORY

Since the emperor Shen Nong tasted 100 herbs and taught the Chinese people how to use them in diet and therapy, herbal medicine has been an integral part of Chinese culture and medical practice. Descriptions of herbal therapy occur in the earliest texts that discuss Chinese medical practice. The traditional Chinese *materia medica* includes minerals and animal parts as well as herbs. Later *materia medicae* represented expanded inquiries into the range of pharmacologically active substances available to the Chinese.

In the 1977 *Encyclopedia of Traditional Chinese Me-*

Summary points

- Chinese patients base their decisions about using herbal medicines on family traditions, professional and quasi-professional recommendations, and self-medication
- Because Chinese medicine does not separate mind and body, no herbs are specified for use in patients with psychiatric conditions
- Practitioners of Chinese medicine do prescribe herbs for physical symptoms that Western physicians would consider as linked to a psychiatric illness
- The main concerns about the use of herbal medicine are adulteration of herbs with pharmaceuticals, adverse effects of the herbs themselves, and possible herb-drug interactions
- When asking patients about their use of herbs, open-ended inquiry couched in supportive terms is likely the most helpful approach

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dicinal Substances, 5,767 substances are identified as part of the traditional *materia medica*.¹ The huge number of substances listed is a result of extensive research into the traditional folk applications of substances in different parts of rural China. A typical practitioner may routinely use between 200 and 600 substances.

DELIVERY FORMS

Of the various forms in which to deliver herbal medicines, water decoction is probably used most widely. This process involves adding 1 to 13 medicinal agents, in quantities of 1 to 12 g each, to water and boiling it for about 45 minutes. The liquid is separated from the herbs and drunk.

Raw herbs may also be consumed in powdered form. An industrial variant of the traditional preparation of raw herbs involves the production of spray-dried concentrates, prepared in Japan, China, and Taiwan, with well-documented quality control procedures. Another traditional delivery method is the honey pill, which is prepared by combining powdered herbs with concentrated decoctions and honey to produce a small herbal pill. In some instances, herbal extracts or powders are prepared using coating and encapsulation methods associated with pharmaceutical agents and supplements. Pills are prevalent and popular as over-the-counter remedies, and many are found in community herb and grocery stores.

PERCEPTION AND TREATMENT OF MENTAL ILLNESS IN CHINESE MEDICINE

Chinese medicine does not separate mind and body. Instead, the psyche and soma interact with each other. Psychological and emotional experiences can affect the body and vice versa. In this sense, spirit is linked both to the health of the body and to the health of the mind. Similarly, aspects of human experience, such as anger, that are considered psychological in a Western biomedical frame of reference are linked in Chinese medicine to specific organs. Anger is related to the liver, obsessive thought to the spleen, and joy to the heart.

No specific constellations of “psychotropic” herbs or medicinal agents are prescribed routinely for specific mental conditions. In addition, given the cultural predisposition to somatization, it may be unclear, in some instances, whether a mental disorder is being treated at all. In Chinese medicine, clinical presentations that are associated with neurosis (*shen jing guan neng zhong*) include a wide range of complaints that have distinct physical effects (see box 1).

Even the term “depression” has a somatic linkage. Depression is understood as a disruption of normal emotional activity,³ related to the stagnation of *qi* (vital sub-

Box 1 Clinical presentations associated with mental disorders in Chinese medicine²

- *Bu mei* sleeplessness
- *Xin ji* palpitation
- *Yu zheng* depression
- *Yi jing* seminal emission
- *Yang wei yang* wilting (impotence)
- *Zang zao* visceral agitation
- *Xu sun* “vacuity detriment” (severe chronic insufficiency of *yin*, *yang*, *qi*, or blood)

stance) caused by “affect damage” (the ability of emotional excesses to damage the internal organs). In Chinese medicine, depression requires differential diagnosis and appropriate treatment. Patterns associated with stagnation of liver *qi*, heat related to the insufficiency of *yin*, stomach heat, and the insufficiency of heart and spleen blood may all be variously implicated.

SOURCES OF MEDICINES IN ETHNIC CHINESE POPULATIONS

Patients in Chinese communities base their decisions about using herbal medicines on family traditions, professional and quasi-professional recommendations, and self-medication.

It was once customary for families to have a household repertoire of herbal formulae to treat medical problems and to address life changes (pregnancy, menopause, old age) and the seasons. Some families retain, and especially older patients may continue to follow, these practices.

The professional practice of traditional Chinese medicine is widespread throughout the world. Such practice is legalized in China, Hong Kong, Taiwan, Vietnam, Japan, Korea, Europe, and the United States. Practitioners often have a comprehensive grounding in biomedical concepts, including pharmacology.

Quasi-professional recommendations emerge from the traditional herb store, which has been a fixture in China for millennia and is part of any community with a substantial Chinese population. These recommendations are typically based on a blend of oral tradition, family practice, and quasi-professional endeavor. The level of expertise ranges widely.

Finally, self-medication typically involves the self-prescription of prepared medicines available from herb stores, corner groceries, and friends. In these environments, product presentation, labeling, marketing, experience, and recommendations can all influence consumer choice.

CONCERNS ASSOCIATED WITH THE USE OF CHINESE HERBS

Adulteration

Most of the literature on the toxicity of Chinese herbal medicines consists of case reports describing the effects of using traditional medicinal agents adulterated with biomedical pharmaceuticals. In the United States, this has sometimes involved pharmaceutical agents that are no longer approved for human use. Adulteration with agents such as heavy metals may present the greatest risk to patients who use Chinese herbs.

Adulteration of prepared medicines imported from China and Taiwan is widespread. In some instances, these products are legitimate in their country of origin. In others, an ambitious or unscrupulous manufacturer has incorporated a pharmaceutical agent to enhance the apparent effects of the prepared herbs. Comparatively harmless examples involve the common adulteration of the famous herbal remedy for colds *Yin Qiao San* with acetaminophen. More harmful examples involve herbal medicines adulterated with large amounts of cortisone and/or non-steroidal anti-inflammatory drugs and sold as arthritis remedies. The potential to confuse the consumer is increased because certain stores in American Chinatowns sell biomedical pharmaceuticals manufactured in China alongside prepared herbal remedies.

Results of a study of arthritis remedies and analgesics sold in herb stores and Chinese medicine clinics in Taiwan showed that 30% of items sampled contained drugs,⁴ including acetaminophen, ibuprofen, and phenylbutazone.

In New York, several Chinatown herb stores have sold dangerously adulterated substances, including *Madam Pearl's Cough Syrup*. This product, which contains codeine, has been an object of regulatory concern since at least 1988 when it appeared on lists provided by the Department of Health Services in California.

Other adulterated preparations found in herb stores, grocery stores, and through the mail, include *Black Pills*, *Chui Fong Tou Koo Wan*, and *Cow's Head Tong Sui Pills*. *Chui Fong Tou Koo Wan* is sold for the treatment of rheumatism and arthritis. It contains, among other ingredients, phenylbutazone, diazepam, and lead.

In 1995, Gertner et al described cases involving five patients from Minnesota with complications from the use of herbal arthritis remedies.⁵ In all cases, the pills were found to contain diazepam and mefenamic acid, both of which can have severe side effects.

The public and regulatory agencies, such as the Food and Drug Administration, are increasingly aware that many illegally imported, but commonly used, prepared Chinese herbal medicines contain biomedical pharmaceuticals. Most of these additions are not represented on the product label, raising the possibility of overdose or other serious consequences.

Toxicity and adverse effects

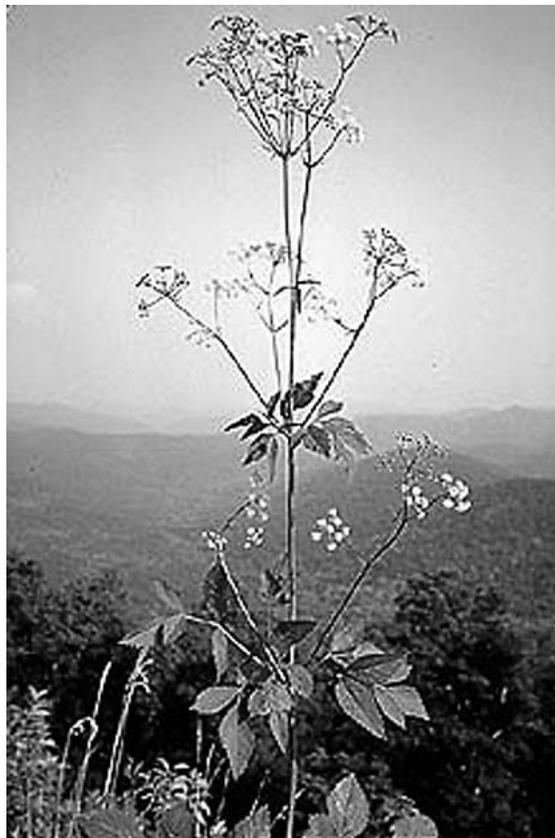
Adverse events associated with herbal medicines typically result from long-term use at inappropriate dosage levels, the use of certain highly toxic substances, and hypersensitivity reactions.

Aconite is probably the most widely used of the highly toxic substances within the Chinese *materia medica*. The forms of this plant that are sold in herb stores and used in prescriptions are treated with heat, water, and vinegar to degrade the toxic alkaloid and to eliminate any significant toxicity. Untreated materials are occasionally used, however, and reports of toxicity have resulted.

Many cases of poisoning with aconite contained in the herbal treatments *chaun wu* and *cao wu* have occurred in China and Hong Kong. A study at one Hong Kong hospital between 1989 and 1991 identified eight patients with signs of poisoning from these substances, including nausea, vomiting, low blood pressure, and ventricular extrasystoles.⁶

Instances of poisoning are probably underreported, so these cases may be the tip of the iceberg. The Chinese government was concerned enough to act to impose controls on prescribing aconite.

The Chinese medicine *Jin Bu Huan* was implicated in



William S Justice/PLANTS/NRCS/USDA

Licorice or compounds containing licorice have been associated with adverse side effects in some patients

three cases of overdose in children.^{7,8} The children were hospitalized with life-threatening bradycardia, and central nervous system and respiratory depression. All recovered after receiving intensive medical care. The product has been formally removed from the commercial market, although it is still available in New York.

A well-known case of reported herbal toxicity has come to be known as “Chinese herbs nephropathy.” Seventy women who were patients at a Belgian weight loss clinic from 1991 to 1992 presented with interstitial renal fibrosis and end-stage renal failure.^{9,10} The Chinese herb *Aristolochia* was implicated in their renal damage. This species of herb contains aristolochic acid, which is toxic to laboratory animals in an extracted and injected form. Debate is ongoing, however, as to the actual relevance of *Aristolochia* in nephropathology.

Although Chinese herbal medicines are used commonly, the overall known incidence of adverse reactions appears relatively low. In an 8-month prospective study of patients admitted to two general medical wards at one hospital in Hong Kong, only 3 of 1,701 patients (0.2%) were hospitalized because of adverse reactions to Chinese herbal medicines.¹¹ These reactions were life-threatening in two cases (*dazao*-induced angioneurotic edema and licorice-induced hypokalemic periodic paralysis).¹¹

Herb-drug interactions

The possibility of herb-drug interactions has been raised,¹² but reports that are directly pertinent to Chinese herbal medicine are scant and often anecdotal. Instances

of well-researched and well-understood interactions are rare.

The Table provides well-documented examples of commonly used Chinese herbs that have well-understood side effects or the potential for drug interactions. Given the differences between herbs and single-molecule pharmaceutical preparations, dosage level and duration of use are important in assessing risk. A compound containing licorice, ephedra, or even processed aconite presents little risk to a patient and is unlikely to interact immediately with a given pharmaceutical. Large quantities, incorrect preparation, or long-term use of a compound, however, may cause problems to occur.

CARING FOR PATIENTS WHO USE HERBS

Determining whether or not your patient is using Chinese herbal medicines in raw (decocted) or prepared forms requires sensitivity. Patients may be disinclined to provide this information even when asked directly. Making an open-ended inquiry couched in supportive terms is helpful. You may preface your inquiry with an encouraging generalization, such as: “I understand that in China there are many herbs that can be used to treat diseases. Some of them can be very helpful. Are there any herbs that you like to use? Are you taking any herbs or other medicines now?”

How to advise the patient concerning herb use is a matter of professional judgment. In the best case, it will be possible to communicate with the prescribing herbalist and explore any issues of concern. Many, but not all, practitioners of Chinese herbal medicine can address some

Risks and herb-drug interactions associated with use of Chinese herbal medicines

Medicinal agent	Common name	Plant species	Relevant constituent	Risk/interaction
Ma Huang	Ephedra	<i>Ephedra sinica</i>	Ephedrine, pseudoephedrine	Can exacerbate hypertension, palpitations, and dizziness. May interact with monoamine oxidase inhibitors, ¹³ sympathomimetics, and epinephrine
Du Huo	Pubescent angelica	<i>Angelica pubescens</i>	Effect may be associated with furocoumarins	Potentially photosensitizing ¹³
Cao Wu	Aconite	<i>Aconitum carmichaeli</i> , <i>A kuspexoffi</i>	Aconitine	Highly toxic in unprepared form; death can occur as a result of small doses of unprepared forms
Gau Cao	Licorice	<i>Glycyrrhiza glabra</i>	Glycyrrhizin, glycyrrhetic acid	Hypokalemia, sodium retention producing hypertension, edema, and headache with prolonged use or a high dose. ¹³ Synergistic effects with prednisolone, hydrocortisone, ¹² and thiazides. May counteract oral contraceptives ¹⁴
Da Huang	Rhubarb		Anthroquinone glycosides, oxalic acid	Irritation of gastrointestinal tract, abdominal cramping, nausea, kidney irritation; should be avoided in pregnancy
Ren Shen	Ginseng	<i>Panax ginseng</i>	Ginsenosides	Ginseng Abuse Syndrome (controversial syndrome, since may be due to adulterants; syndrome, rarely reported, is considered to include hypertension, anxiety, insomnia); interaction with phenelzine sulfate reported ¹²

Box 2 Resources for health professionals on Chinese herbal medicine

Text resources

- *Botanical Safety Handbook*. Edited by Michael McGuffin, Christopher Hobbs, Roy Upton, Alicia Goldberg. Boston: CRC Press; 1997. A comprehensive, conservative guide to many herbs, including those in the Chinese *materia medica*.
- Daniel Bensky, Andrew Gamble. *Chinese Herbal Medicine Materia Medica*. Seattle: Eastland Press; 1993. Herb names can be accessed in Asian languages as well as in botanical and common terms. The text discusses traditional use, contraindications, toxicity, and research data for over 400 substances.
- Kun-Ying Yen. *The Illustrated Chinese Materia Medica*. Translated by Nigel Wiseman. Taipei: SMC Publishing; 1992. An excellent resource, with photographs, for the identification of many Chinese herbs.
- Chang Hson-Mou, and Paul Pui-hay But. *Pharmacology and Applications of Chinese Materia Medica (Volumes 1 & 2)*. Translated by Sih-Cheng Yao, Lai-Ling Wang, and Shem Chang-Shing Yeung. Singapore: World Scientific; 1986, 1987. The preeminent English language text compilation of research data on Chinese herbal medicine.
- *Traditional Chinese Medicines: Molecular Structures, Natural Sources, and Applications*. Compiled by X Yan, J Zhou, and G Xie. Brookfield: Ashgate; 1999. A technical and comprehensive resource to guide biochemists and pharmacological researchers. It provides an opportunity to assess the presence of a suspected chemical in a specific Chinese herb.

Internet resources

- American Botanical Council (www.herbalgram.org)
- Herbal Research Foundation (www.herbs.org)
- US Food and Drug Administration (www.fda.org)
- National Center for Complementary and Alternative Medicine (NCCAM) at the National Institutes of Health (NIH) (altmed.od.nih.gov/)
- United States Pharmacopeia (www.usp.org)
- Alternative Medicine Foundation, Inc (www.herbmed.org)

of these issues. If the patient is using prepared medicines, you may be able to gain access to the packaging to assess the content, although the information provided is not always reliable.

Many clinicians choose the simple course and advise the patient to discontinue or moderate its use. Although this advice may seem to be the best course of action, it may reduce the quality of future communication with the patient or with other patients. Consequently, attempting to gain more information and informing the patient about the basis for your advice is important. Often, patients can help you learn more about why they are using herbs.

The resources listed in box 2 offer a first step in becoming more acquainted with aspects of Chinese herbal medicine.

References

- 1 Bensky D, Gamble A. *Chinese Herbal Medicine Materia Medica*. Seattle: Eastland Press; 1993:5.
- 2 Zhang E, Jidong Z, Zhigang L, Clinic of Traditional Chinese Medicine (I), trans. Weixin J, Shushan S, Xiaoyue G. In *A Practical English-Chinese Library of Traditional Chinese Medicine*, E Zhang, ed. Shanghai: Publishing House of Shanghai; 1990:212.
- 3 Wiseman N, Ye F. *A Practical Dictionary of Chinese Medicine*. Brookline, MA: Paradigm; 1998:123.
- 4 Dharmananda S. *Tiptoeing Through the Chinese Medical Mine Field*. Start Group. Portland: Institute for Traditional Medicine; 1994.
- 5 Gertner E, Marshall PS, Filandrinos D, Potek AS, Smith TM. Complications resulting from the use of Chinese herbal medications containing undeclared prescription drugs. *Arthritis Rheum* 1995;38:614-617.
- 6 Chan TY, Tomlinson B, Critchley JA. Aconitine poisoning following the ingestion of Chinese herbal medicines: a report of eight cases. *Aust N Z J Med* 1993;23:268-271.
- 7 Jin bu huan toxicity in children—Colorado, 1993. *MMWR Morb Mortal Wkly Rep* 1993;42:633-636.
- 8 US Food and Drug Administration Center for Food Safety and Applied Nutrition 1993. *Illnesses and Injuries Associated With the Use of Selected Dietary Supplements*. Available at www.cfsan.fda.gov/~dms/ds-ill.html. Accessed March 22, 2002.
- 9 Depierreux M, Van-Damme B, Vanden-Houte K, Vanherweghem JL. Pathologic aspects of a newly described nephropathy related to the prolonged use of Chinese herbs. *Am J Kidney Dis* 1994;24:172-180.
- 10 Vanherweghem JL, Depierreux M, Tielemans C, et al. Rapidly progressive interstitial fibrosis in young women: association with slimming regimen including Chinese herbs. *Lancet* 1993;341:387-391.
- 11 Chan TYK, Chan AYW, Critchley JA. Hospital admissions due to adverse reactions to Chinese herbal medicines. *J Trop Med Hyg* 1992;95:296-298.
- 12 Fugh-Berman A. Herb-drug interactions. *Lancet* 2000;355:134-138.
- 13 McGuffin M, Hobbs C, Upton R, Goldberg A, eds. *Botanical Safety Handbook*. Boston: CRC Press; 1997.
- 14 Mills S, Bone K. *Principles and Practice of Phytotherapy: Modern Herbal Medicine*. New York: Churchill Livingstone; 2000:474.

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