Chinese Herbal Formulas Every Western Practitioner Should Know—Part 2

Eric Yarnell, ND, RH (AHG), and Kathy Abascal, BS, JD, RH (AHG)

Abstract

Continuing from the previous issue of this journal, four additional important herbal formulas from Chinese medicine are discussed from the standpoint of their uses in Western medicine. These formulas are *liù wèi dì huáng wán* (*rokumijiogan*), *yín qiáo sǎn* (*gingyo-san*), *suān zǎo rén tāng* (*sansounin-tō*), and *dāng guī bǔ xuè tāng* (*tokihoketsu-tō*). The research supporting their efficacy for a wide range of conditions and their safety are reviewed.

Introduction

Chinese medicine is an ancient system with a well-recorded history. Herbal formulas that have been used for hundreds or thousands of years, containing herbs that have been in use for even longer, have been passed down intact to the current generation. Unlike the fragmented history of Western traditional medicine, Chinese medicine has an unbroken lineage. This continuous practice of Chinese medicine combined with the extensive history of use of its herbal formulas alone recommends them for use in Western practice.

Continuing the review of some key traditional Chinese herbal formulas from the first part of this article, *liù wèi dì huáng wán* (*rokumijiogan*), *yín qiáo sǎn* (*gingyo-san*), *suān zǎo rén tāng* (*sansounin-tō*), and *dāng guī bǔ xuè tāng* (*tokihoketsu-tō*) are discussed in this second part of the article in sufficient depth for Western practitioners of natural medicine to begin to incorporate these herbs into their practices. (See Table 1.)

Six Ingredient Pill with Rehmannia (*Liù Wèi Dì Huáng Wán*)

This formula was first described in the *Craft of Medicinal Treatment for Childhood Disease Patterns* (Xiǎo Ér Yào Zhèng Zhí Jué) by Qían Yǐ in 1119 AD. The components of Six Ingredient Pill with Rehmannia (SIPR) are shown in Table 2. This is a useful formula for addressing chronic renal diseases, including glomerulonephritis and chronic renal failure, as well as hypertension. The formula may also be of benefit for patients with glaucoma, cataracts, diabetes mellitus, and several other metabolic conditions based on traditional use,[1] although no clinical trials were identified for these indications.

In the most rigorous trial located, 68 patients with stage II chronic renal disease were randomized to receive a variation of SIPR (known as *gu ben qu du yi shen tang*) or no additional treatment.[2] Patients at this stage of kidney failure often can be maintained or experience improvement with this formula, although little conventional treatment exists to accomplish this. Thus, it is important to validate and use traditional treatments for this situation instead of waiting for the condition to become worse and then instituting dialysis or having a patient undergo a kidney transplant. *Gu ben qu du yi shen tang* has all the ingredients of SIPR, except for *Paeonia suffruticosa* (mountain peony), and adds *Astragalus membranaceus* (astragalus, *huang qi*) root, *Eucommia ulmoides* (eucommia) bark, *Grifola umbellata* (*zhu ling*) mushroom, *Salvia miltiorrhiza* (Chinese sage) root, *Centella asiatica* (*gotu kola*) herb, *Eupatorium chinense* (*liu yue xue*) herb, and *Rheum palmatum* (rhubarb) prepared root.

In the aforementioned study,[2] all patients ate low-protein, low-phosphorus diets. At the end of the 2-year trial, serum creatinine, cystatin-C, and blood–urea–nitrogen were all significantly reduced, and glomerular filtration rate (GFR) was significantly increased in the treatment group, while these biomarkers rose (except GFR, which fell) significantly in the control group. These results demonstrated that the herbal formula was significantly superior to the control condition of conventional treatment alone, including the diets without the herbs. Adverse effects were minimal, and no patients left the study because of any such effects. One weakness of this trial was the failure to identify the causes of the kidney failure in the participants.

Note that *liu yue xue* contains potentially hepatonephrotoxic and carcinogenic unsaturated pyrrolizidine alkaloids; thus, the

Table 1. Summary of Formulas Covered in This Article

Chinese name	Japanese name	Korean name	English translation
Liù wèi dì huáng wán	*Rokumijiogan*	*Youk heu jih wang wan*	Six Ingredient Pill with Rehmannia
Yín qiáo sǎn	*Gingyo-san*	*Eun kyo san*	Lonicera and Forsythia Powder
Suān zǎo rén tāng	*Sansounin-tō*	*San jo yin tang*	Sour Jujube Decoction
Dāng guī bǔ xuè tāng	*Tokihoketsu-tō*	*Dang gui bo hyuel tang*	Angelica Decoction to Tonify Blood

Table 2. Six Ingredient Pill with Rehmannia Ingredients and Dosing

Herb (common name[s]) & part used	Pill amount	Decoction amount
Rehmannia glutinosa (rehmannia) cooked root	240 g	24 g
Cornus officinalis (Cornelian cherry) fruit	120 g	12 g
Dioscorea opposita (Chinese yam) tuber	120 g	12 g
Wolfiporia extensa (*hoelen, fu ling*) sclerotium	90 g	9 g
Paeonia suffruticosa (mountain peony) root bark	90 g	9 g
Alisma plantago-aquatica (water plantain) rhizome	90 g	9 g

When the pills are made, the quantities shown of powdered herb are mixed with honey then shaped into tablets. The dose is 9 g t.i.d. As a decoction, one-third of the amounts shown are simmered for 15–30 minutes in 250–500 mL of water, strained, then drunk. Three such cups of the final brew should be drunk per day.

current authors' advice would be to leave *liu yue xue* out of any formula for use for more than 1 month continuously, if it should be used at all.[3] Also note that eucommia is becoming threatened in the wild, and so only cultivated sources should be used.[4*]

At least two similar trials on *gu ben qu du yi shen tang* have apparently been conducted. However, the results were only available in Chinese, and no details of these studies could be ascertained.[5,6]

In a group of patients with nephrotic syndrome being treated with a prednisone taper (sample size unknown), half of the patients were randomly assigned to also receive SIPR.[7] Improvement in urine and plasma albumin levels and serum triglyceride and cholesterol levels occurred in both groups, but were superior in the SIPR-treated group, compared to the control group. Recurrence of disease was less frequent in the SIPR group versus the control group. Adverse effects were less-frequent in the SIPR group as well.

A similar study looked at 64 patients with lupus nephritis being treated with prednisone and intravenous cyclophosphamide.[8] Half of the patients were randomly assigned to also receive SIPR in addition to these medications. More patients in the SIPR group were cured, compared to the patients in the control group. Serum and urine protein, erythrocyte sedimentation rate, and complement C3 levels all improved significantly more in the SIPR group versus the control group. Adverse effects were significantly lower in the SIPR group compared to the control group.

*Although commercial versions of the formula with these changes are not available, it is simple to compound it by writing a variant prescription excluding the problematic ingredients.

Taken together, this study[8] and the nephrotic syndrome study[7] discussed above suggest that SIPR may be a particularly beneficial adjunct to immunosuppressive therapies in patients with glomerulonephritis. In addition, an animal study showed that SIPR, in particular, protected animals against the reproductive toxicity of cyclophosphamide.[9]

Six Chinese clinical trials of SIPR combined with antihypertensive drugs were assessed in a meta-analysis.[10] The drugs involved were nifedipine, enalapril, and captopril, and the trials ran from 4 to 18 weeks. In all cases, the control group received one of the antihypertensive drugs alone. Overall, the combination of SIPR and these medications led to better blood pressure control than the medications by themselves. However, the methodological rigor of all the studies was low. Few reported about adverse effects at all (though those that did found SIPR to be very safe). No studies were located of use of SIPR by itself to treat hypertension.

More studies are needed but SIPR is a therapy to consider in patients with chronic renal diseases. It is also definitely worth considering as a safe adjunct to antihypertensive drugs. More rigorous trials are needed to determine the exact role of SIPR for all indications. It is generally quite safe, causing, at most, mild nausea.

Honeysuckle and Forsythia Powder (*Yín Qiáo Sǎn*)

This relatively modern formula comes from the *Systematic Differentiation of Warm Pathogen Diseases* (*Wēn Bìng Tiáo Biàn*) by Fāng Yǒu-Zhí (1798 AD). The ingredients of Honeysuckle and Forsythia Powder (HFP), both in the original formula and

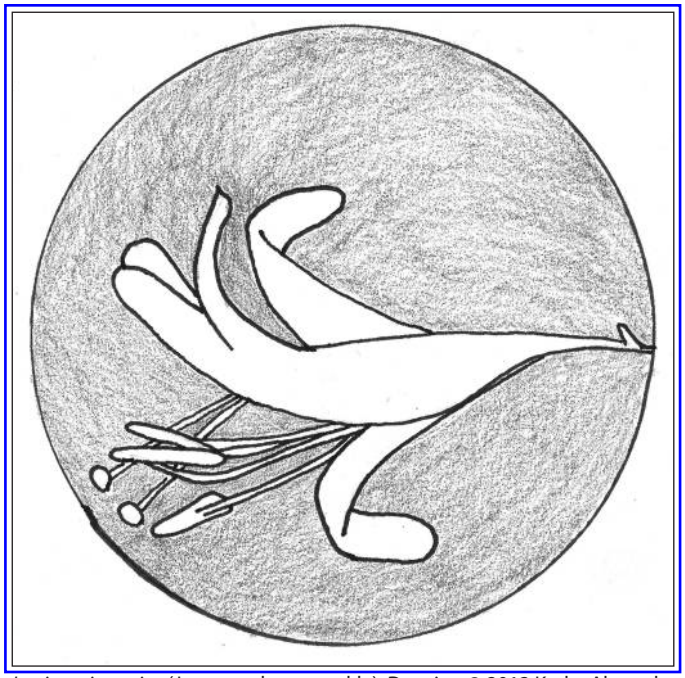
the amounts more typically used in the modern formula, are listed in Table 3. Note that, because *Forsythia suspensa* (forsythia) is a relatively rare herb, the similar-acting *Fritillaria thunbergii* (Thunberg's fritillary, *zhe bei mu*) bulb is frequently substituted for forsythia[11]

HFP is an important formula for treating respiratory-tract infections including influenza, acute viral bronchitis, infectious pharyngitis, and similar syndromes.[12] The formula is particularly helpful when a patient has a fever.

In a randomized open trial in Chinese people with mild influenza A, a combination of HFP and the formula *má xìng shí gān tāng* (Ephedra, Apricot Kernel, Gypsum and Licorice decoction) was compared to oseltamivir (a neuraminidase-inhibiting anti-influenza drug, at a dose of 75 mg b.i.d.), no treatment, and a combination of the herbal formula with oseltamivir.[13]

The exact herbal formula used contained: *Lonicera japonica* (Japanese honeysuckle), 15 g; forsythia, 15 g; Thunberg's fritillary, 10 g; *Arctium lappa* (burdock), 15 g; *Glycyrrhiza uralensis* (licorice), 10 g; *Ephedra sinica* (*ma huang*) honey-fried stem, 6 g; *Anemarrhena asphodeloides* (*zhi mu*) rhizome, 10 g; gypsum (calcium sulfate dihydrate, *shi gao*), 30 g; *Artemisia annua* (sweet Annie, *qing hao*), 15 g; *Scutellaria baicalensis* (Chinese skullcap, *huang qin*) root, 15 g; and *Prunus armeniaca* (apricot) stir-baked pit, 15 g. This amount of herb was decocted daily to yield 800 mL of tea, finally, which was drunk at a dose of 200 mL, four times per day. Each patient in the study (N = 410, ages 15–59) had laboratory-confirmed influenza. Patients in groups assigned to the formula were treated for 5 days.

All interventions significantly reduced median time to fever reduction, compared to no treatment. Oseltamivir combined with the herbs significantly reduced time to fever resolution compared to the drug alone. Symptomatic improvement was not different among any of the groups. The herbal formula was safe, although 2 patients who took it reported vomiting. The authors concluded that this herbal formula was a safe and effective alternative to oseltamivir in patients with mild influenza.[13] Although not studied, there is also little chance of the influenza virus becoming resistant to such a complex herbal formula, compared to oseltamivir resistance that is extremely common and worsening.[14]



Lonicera japonica (Japanese honeysuckle). Drawing © 2013 Kathy Abascal, BS, JD, RH (AHG).

In a large case series (N = 130), HFP has also been reported to help resolve acute infectious parotitis in children in China.[15] Unfortunately, no details are available from this study, which was published only in Chinese. It is possible that the children involved had mumps or one of several other types of epidemic parotitis that are seen periodically in China.

One study evaluating the chemistry of the top five herbs in HFP found that they were optimally extracted at 50% ethanol to kill influenza A and that a mixture of the compounds in these

Table 3. Honeysuckle and Forsythia Powder Ingredients and Dosing

Herb (common name) & part used	Original amount	Modern amount
Lonicera japonica (Japanese honeysuckle) flower	30 g	9–15 g
Forsythia suspensa (forsythia) fruit	30 g	9–15 g
Platycodon grandiflorus (balloon flower) root	18 g	3–6 g
Arctium lappa (burdock) fruit	18 g	9–12 g
Glycine max (soy) fermented seed	15 g	3–6 g
Schizonepeta tenuifolia (schizonepeta) flowering top	12 g	6–9 g
Lophatherum gracile (lopatherum) leaf	12 g	3–6 g
Phragmites communis (phragmites reed) rhizome	15–30 g	15–30 g
Mentha haplocalyx (wild mint) leaf	18 g	3–6 g
Glycyrrhiza uralensis (licorice) root	15 g	3–6 g

The original formula recommended decocting fresh phragmites until the aroma became strong. Then 9 g of the other herbs, having been ground to powder, were added to the decoction. This amount was drunk three times per day, or four times per day if the patient's disease was severe. In modern times, the entire mixture, except the wild mint, is decocted for a maximum of 20 minutes, with the wild mint added during the last 5 minutes, in 250–500 mL of water. One cup is drunk warm at least three times per day.

Table 4. Sour Jujube Decoction Ingredients and Dosing

Herb (common name[s]) & part used	Amount
Zizyphus spinosa (jujube) seed	12–18 g
Wolfiporia extensa (*hoelen, fu ling*) sclerotium	6 g
Anemarrhena asphodeloides (anemarrhena) rhizome	6 g
Ligusticum chuanxiong (Chinese lovage) root	6 g
Glycyrrhiza uralensis (licorice) root	3 g

The jujube seeds should be crushed before decocting. The original formula called for decocting the jujube first, but this is rarely done today. Typically, all the ingredients are decocted in 250–500 mL of water for 15–20 minutes and drunk before bedtime.

herbs was more effective than any single compound against influenza A.[16] A 50% extract of HFP, at concentrations of 250 and 500 mg/mL, was more effective than ribavirin for inhibiting influenza A in vitro in this study. A range of flavonoids in particular appears to be important to the anti-influenza activity of HFP.[17]

A study of mice infected with influenza A found that licorice and burdock were primary antivirals in the formula, and that HFP, at a dose of 10 mg/kg, protected mice 100% from death from influenza versus what occurred in all the untreated control mice, who died from influenza.[18] In experimental studies in animals, HFP has also been shown to be immunostimulating, inflammation-modulating in the lung, and antipyretic in mice with influenza.[19–21]

One of the two lead herbs in this formula, Japanese honeysuckle (Caprifoliaceae family), and many of its chemicals, have been demonstrated to have many actions that are likely to carry over to the HFP formula, including modulating inflammation, inhibiting a wide range of respiratory pathogens, and reducing oxidative damage.[22]

There are many species of *Lonicera* around the world; it is simply unknown if any of them can be substituted safely and effectively for Japanese honeysuckle. However, Japanese honeysuckle is a fairly serious invasive weed in many parts of the United States, so an effort should be made to use indigenous material for medicine instead of importing it from China.[23,24] This would both help control the weed and put it to good use instead of simply removing it or spraying it with herbicides (and all the attendant unintended negative effects that come from this).

Overall HFP is very safe. *Glycine max* (soy) should be left out of the formula for patients who are allergic to soy. If there is a concern about nausea and vomiting or a patient has this reaction to the formula, then the *Mentha haplocalyx* (wild mint) amount should be increased or *Zingiber officinale* (ginger) added to the formula (3–6 g/dose).

Sour Jujube Decoction (*Suān Zǎo Rén Tāng*)

This ancient formula first appeared in the *Essentials from the Golden Cabinet* (*Jīn Guì Yào Lüè*) by Zhāng Jī (circa 220 AD). The components of Sour Jujube Decoction are reviewed in Table 4. This formula has a calming effect and is useful for patients with insomnia and/or anxiety in particular (though studies are lacking for the latter indication). This formula is still the most commonly prescribed one in Taiwan for insomnia, based on analysis of Taiwan's National Health Insurance claims.[25]

A meta-analysis of clinical trials of Sour Jujube Decoction concluded that it is more effective than benzodiazepines for people with insomnia.[26] However, the 12 trials included in the analysis all had significant methodological flaws, including lack of blinding, failure to use intention-to-treat statistical analysis, small sample sizes, and near total failure to report on adverse effects. The three trials that did report on adverse effects did not report any serious problems and only very few minor ones.

In one older trial, 374 patients were treated with either Sour Jujube Decoction *Ansen* variation (exact formula not available), another herbal formula known as *Zhusha Ansen* (formula also not available), or the drug methaqualone.[27] It was unclear if treatment allocation was randomized. Sour Jujube Decoction was more effective than the *Zhusha Ansen* formula and as effective as methaqualone. Three patients had nausea from the Sour Jujube Decoction, but there were no other adverse effects.

One more-recent open clinical trial found that Sour Jujube Decoction was particularly helpful for perimenopausal women who were having trouble with daytime functioning because of insomnia.[28] Of the 67 Chinese women in the study, those with the most severe climacteric symptoms appeared to obtain the greatest benefit. Three patients dropped out of the study because of gastric distress, diarrhea, or dizziness (1 case of each) apparently caused by the formula.

Sour Jujube Decoction and slight variations of it have also been looked at specifically in patients with chronic hepatitis B with insomnia. In one trial involving 65 patients, they were randomized to receive either a modified Sour Jujube Decoction (exact formula not available) or the benzodiazepine drug surazepam plus diammonium glycyrrhizinate, a compound from licorice for liver protection.[29] More patients reported the herbal formula to be "markedly effective," compared to the drugs; the numbers of patients reporting the two treatments to be just "effective" were equal. Stage III and IV as well as rapid eye movement sleep increased in patients taking Sour Jujube Decoction. Serum aspartate transaminase levels fell more in the herbal-formula group, compared to the drug group, suggesting that the herb was also more effective for improving liver function.

A similar randomized nonblinded trial of 60 patients compared Sour Jujube Decoction to standard behavior modification, plasmapheresis, and antihepatitis drugs.[30] The herbal formula was superior to the control therapy for improving sleep. In addition, Sour Jujube Decoction was more effective for lowering various serum markers of hepatitis-related inflammation than standard therapy was. There were no adverse effects in this trial.

The lead herb of this formula, *Zizyphus spinosa* (jujube), has been studied fairly extensively on its own as a sleep aid. Whole-seed extracts, jujubosides, jujubogenin, and the flavonoid spinosin have all been shown to exert hypnotic effects in various animal models.[31–34]

These constituents have been shown to act both by activating γ-aminobutyric acid–A receptors and by inhibiting postsynaptic 5-HT(1A) receptors. At least one of these compounds, jujubogenin, was shown specifically to cross the blood–brain barrier. Jujube extracts potentiated the antiseizure efficacy of phenytoin and phenobarbitone but not carbamazepine in rats.[35] Clearly, jujube is a critical part of this formula, but more work needs to be done to determine the relative contributions of the other herbs in the mixture.

Sour Jujube Decoction is a very safe formula, although it occasionally causes nausea. There are no well-established interactions, although two components of the formula, *Anemarrhena asphodeloides* (anemarrhena) rhizome and *Ligusticum chuanxiong* (Chinese lovage) root, are both at least mild platelet-aggregation inhibitors. The presence of licorice requires caution as in all formulas with this herb, because overdosing can lead to potassium wasting with all the problems that result from that—most notably hypertension. Patients taking this formula for any length of time should be counseled to eat plenty of fruits and vegetables while doing so to ensure high potassium intake.

Angelica Decoction to Tonify Blood (*Dāng Guī Bǔ Xuè Tāng*)

This simple formula first appeared in *Clarifying Doubts About Injury from Internal and External Causes* (*Nèi Wài Shāng Biàn Huò Lùn*) by Lǐ Dōng-Yuán in 1247 AD. It is entirely possible that the two herbs in the formula were used together before this, given how common they are and how frequently they are used. Nevertheless, Li's description was the first that formalized the formula. The components of Angelica Decoction to Tonify Blood (ADTB) are shown in Table 5. The formula has wide applicability in female reproductive health including for perimenopausal symptoms. ADTB is also erythropoietic, which could be useful for patients undergoing chemotherapy or radiation therapy, as well as for patients with chronic kidney disease.

Two randomized, double-blinded clinical trials on ADTB were conducted in Hong Kong; the trials involved perimenopausal women. The most-recent of these trials included 60 women with severe hot flashes and night sweats.[36] Subjects were randomized to receive 1.5 (a subtherapeutic

Obtaining Safe Chinese Herbs

It is no secret that a significant number of herbs sourced from China are grown using pesticides, sometimes with agents banned in Western countries and sometimes with residue concentrations higher than legal and/or safe limits.[a,b] Similarly, some Chinese herbs are contaminated with heavy metals.[b–d] Some Chinese herbs are also confused with other herbs because they have similar sounding names; this situation can lead to toxicity problems.[e]

In perhaps the most famous example of this, women at a Belgian weight-loss clinic were inadvertently exposed to aristolochic acid from *Aristolochia fangchi* (*guang fang ji*) when they were supposed to be taking *Stephania tetrandra* (*han fang ji*).[f] More than 50 women had chronic renal failure as a result of this episode, and some developed urothelial cancer.

Common use of artistolochic acid–containing herbal supplements (properly labeled as such, not adulterated) in Taiwan has been shown to be a risk factor for upper urothelial cancer, a rare entity that is much more common in Taiwan than anywhere else.[g] Herbs containing aristolochic acid have subsequently been banned in Taiwan.[h] Some Chinese herbs are adulterated with pharmaceuticals, sometimes with toxic levels of these drugs.[i,j]

However, there is no large-scale, rigorous study of the degree of contamination or adulteration of Chinese herbs. Epidemiologic studies, reviews of reports of herbal toxicity to poison-control centers, and other observational evidence all suggest that herbal medicines of all kinds in the United States have very little toxicity despite their widespread use.[b] Of course, these analyses cannot assess for all possible outcomes, particularly chronic toxicity.

Ideally, herbs of all kinds should be purchased from companies providing certified organic or wild crafted (when sustainable) herbs. Reputable companies should assess herbs for pesticides, heavy metals, and other contaminants and should provide reports stating as such when these reports are requested. Reputable companies are generally members of the American Herbal Products Association (although many smaller companies cannot afford membership).

In addition, the identities of imported herbs should be verified objectively (by microscopic or chemical examination), with reports made available immediately upon request. All herbs imported into the United States should be analyzed for contaminants, and reports should be made freely available by the companies supplying such herbs.

Mayway (Oakland, CA) and KPC Herbs (KPC Products, Inc., Irvine, CA) are two examples of companies that meet such standards.[k]

[a]Greenpeace. Chinese Herbs: Elixirs of Health or Pesticide Cocktail? Results of Sample Testing from Seven Countries. 2013. Online document at: www.greenpeace.org/eastasia/campaigns/food-agriculture/Chinese-Herbs-Elixir-of-Health/ Accessed August 21, 2013; [b]Chan K. Some aspects of toxic contaminants in herbal medicines. Chemosphere 2003;52:1361–1371; [c]Ting A, Chow Y, Tan W. Microbial and heavy metal contamination in commonly consumed traditional Chinese herbal medicines. J Tradit Chin Med 2013;33:119–124; [d]Centers for Disease Control and Prevention (CDC). *Jin Bu Huan* toxicity in adults—Los Angeles 1993. MMWR Morb Mortal Wkly Rep 1993;42:920–922; [e]Wu KM, Farrelly JG, Upton R, Chen J. Complexities of the herbal nomenclature system in Traditional Chinese Medicine (TCM): Lessons learned from the misuse of *Aristolochia*-related species and the importance of the pharmaceutical name during botanical drug product development. Phytomedicine 2007;14:273–279; [f]Vanherweghem JL, Depierreux M, Tielemans C, et al. Rapidly progressive interstitial renal fibrosis in young women: Association with slimming regimen including Chinese herbs. Lancet 1993;341:387–391; [g]Chen CH, Dickman KG, Moriya M, et al. Aristolochic acid–associated urothelial cancer in Taiwan. Proc Natl Acad Sci U S A 2012;109:8241–8246; [h]Lin HH, Chou SA, Yang HY, et al. Association of blood lead and mercury with estimated GFR in herbalists after the ban of herbs containing aristolochic acids in Taiwan. Occup Environ Med 2013;70:545–551; [i]Jung J, Hermanns-Clausen M, Weinmann W. Anorectic sibutramine detected in a Chinese herbal drug for weight loss. Forensic Sci Intl 2006;161:221–222. [j]Gertner E, Marshall PS, Filandrinos D, et al. Complications resulting from the use of Chinese herbal medications containing undeclared prescription drugs. Arthritis Rheum 1995;38:614–617.

[k]Neither of the authors has any connection to these two companies, financial or otherwise.

Table 5. Angelica Decoction to Tonify Blood Ingredients and Dosing

Herb (common name) & part used	Amount
Astragalus membranaceus (*huang qi*) root	30 g
Angelica sinensis (*dong quai*) wine-washed root	6 g

The ratio of the two herbs stated here (5:1) has been shown to provide the optimal extraction of constituents (see: Dong TTX, Zhao KJ, Gao QT, et al. Chemical and biological assessment of a Chinese herbal decoction containing radix astragali and radix *Angelicae sinesis*: Determination of drug ratio in having optimized properties. J Agric Food Chem 2006;54:2767–2774). The herbs should be simmered for 15–30 minutes together in 250–500 mL of water, then strained and drunk. Three such cups of decoction should be drunk each day. Processing *dong quai roots* with yellow wine enhances activity of the formula (see: Zhan JY, Zheng KY, Zhu KY, et al. Chemical biological assessment of *Angelicae sinensis* radix after processing with wine: An orthogonal array design to reveal the optimized conditions. J Agric Food Chem 2011;59:6091–6098).

dose that could be seen as a placebo) or 3 or 6 g of ADTB per day for 3 months. Symptoms were reduced the most in the 6-g group, compared to either of the other two groups, although the 3-g group also had significant improvement, compared to the 1.5-g group. Serum levels of estradiol, luteinizing hormone, and follicle-stimulating hormone, as well as lipids, were not affected by treatment. There were no serious adverse effects.

An older trial compared 3 g of daily ADTB to placebo for 6 months in 100 women who had mild hot flashes and night sweats.[37] In women with mild hot flashes and night sweats, ADTB provided significantly greater relief than placebo. Yet, for women with moderate hot flashes and night sweats, placebo was actually superior to ADTB. Neither ADTB nor placebo produced a significant effect on severe hot flashes and night sweats. Very few adverse effects occurred, although 1 patient who received ADTB developed rectal bleeding. It is difficult to reconcile this largely negative trial with the positive trial discussed above. More studies attempting to replicate both of these trials are warranted.

The erythropoietic effects of ADTB have been documented repeatedly in vitro and in animal models.[38] In mice, ADTB increased production of erythrocytes and platelets, the latter by multiple mechanisms of action on megakaryocytes in the bone marrow.[39] ADTB has been shown to induce erythropoietin secretion mediated by hypoxia-inducible factor.[40] Studies in humans appear to exist in the Chinese literature but no details could be obtained.[41] More research is clearly warranted for this interesting and important action.

ADTB is very safe, not even usually causing any digestive upset. There is a very remote chance of the formula inhibiting platelet aggregation sufficiently to lead to bleeding, but this has only been reported in 1 case as noted above.

Compounds in *dong quai*, most notably ferulic acid, have been shown to increase absorption of compounds, such as the isoflavones formononetin and calycosin from astragalus.[42] This argues for the utility of combining the herbs in a formula as opposed to choosing one or the other to use separately. More studies like this are needed for this and all the formulas discussed in this article to determine the extent to which formulation is superior to use of individual herbs.

Conclusion

Many Chinese herbal formulas have great value and should be added to the therapeutic armamentarium of the West. This enhancement is also happening in the other direction, with China, Korea and Japan (among other Asian countries) increasingly adopting Western herbs for use in their medical systems. Certainly, in cases when other treatments are not working, Chinese herbal formulas should be considered.

Use of indigenous North American herbs is probably preferable as a first-line treatment for many patients in North America. This is not recommended out of bias but because of simple sustainability, limiting the amount of material that has to be shipped between continents.

However, the research and practice base using many North American herbs, particularly those found in western North America, is much weaker than that for Chinese herbs. Therefore, it is up to Western herbal practitioners to build up a foundation as strong as that seen in Traditional Chinese Medicine and to show that these formulas can be as useful as those in China. The success of Chinese medicine should not be looked upon as belittling Western herbal medicine but rather as a role model of how successful and widespread it could be. ■

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Eric Yarnell, ND, RH (AHG), is chief medical officer of Northwest Naturopathic Urology, in Seattle, Washington, and is a faculty member at Bastyr University in Kenmore, Washington. **Kathy Abascal, BS, JD, RH (AHG),** is an herbalist in Vashon, Washington.

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