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FILE: ▪ Traditional Chinese Medicine
▪ Cardiovascular Ailments
▪ Diabetes Mellitus

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RE: The Potential Value of Chinese Herbs for Cardiovascular Disease in Diabetics

Ceylan-Isik AF, Fliethman RM, Wold LE, Ren J. Herbal and traditional Chinese medicine for the treatment of cardiovascular complications in diabetes mellitus. *Curr Diabetes Rev*. 2008;4:320-328.

Diabetes mellitus affects millions worldwide. Chronic hyperglycemia severely damages kidneys, nerves, eyes, blood vessels, and heart. Cardiovascular (CV) complications increase morbidity and mortality. Vascular complications cause blindness, renal failure, neuropathy, and atherosclerosis. Cardiac dystolic dysfunction is diabetics' most common primary heart defect. Diabetic cardiomyopathy reduces heart wall compliance and rate of myocardial relaxation. Other dysfunctional changes are also seen in diabetic hearts. Conventional regimes for diabetes with CV complications include angiotensin-converting enzyme inhibitors, digoxin, diuretics, β-blockers, Ca^{2+} antagonists, and/or spironolactones. Insulin-sensitizing agents such as thiazolidinediones aid insulin efficiency and exert beneficial effects on CV gene expression. However, recent meta-analyses found greatly increased risk (~40%) of myocardial infarction among patients taking one thiazolidinedione drug, compared with other oral drugs or placebo, prompting renewed interest in the over 800 plants listed with anti-diabetic potential.

The authors discuss four types of Traditional Chinese Medicine (TCM) herbal remedies, giving several examples of each type with potential benefit in CV complications of diabetes.

Energy-promoting herbs affect central nervous system (CNS), immune, endocrine, and CV systems. Asian ginseng (*Panax ginseng*), e.g., invigorates; restores homeostasis; aids in CV disease, cancer, immune deficiency, and hepatotoxicity; and may aid in aging, CNS disorders, and neurodegenerative diseases. Many energy-promoting herbs have anti-inflammatory, anti-shock, and anti-tumor properties, and are immunopotentiating. Ginseng and licorice (*Glycyrrhiza glabra*) both stimulate endocrine function. Ginseng's ginsenosides regulate adrenals. Dong quai (*Angelica sinensis*) and black cohosh (*Actaea racemosa* syn.

Cimicifuga racemosa) regulate menopausal symptoms. Most energy-promoting herbs have hypoglycemic effects. Ginseng may protect β-islet cells from toxicity, aiding insulin secretion. Energy-promoting herbs benefit CV conditions such as angina pectoris, myocardial infarction, heart failure, shock, and chronic respiratory disease. An injected combination of ginseng, dong quai, and astragalus (*Astragalus membranaceus*) inhibited platelet aggregation.

Blood-promoting herbs aid circulation, nourish blood, increase its production, and are anti-thrombotic. Dong quai, Chinese salvia (*Salvia miltiorrhiza*), Chinese peony (*Paeonia lactiflora*), and safflower (*Carthamus tinctorius*) all support coronary blood flow and reduce myocardial oxygen use, ischemia, and arrhythmia. Dong quai opposes induced arrhythmia. Stephania (*Stephania tetrandra*) lowers cardiac automatic rhythm. Chinese salvia is vasodilating, improving microcirculation to the lungs and kidneys. *Ligusticum wallichii* has many potential CV benefits; with Chinese salvia and dong quai, it restored microcirculation after adrenaline-induced contraction. A peony extract has aspirin-like effects and may reduce platelet aggregation and thrombosis from hyperlipidemia or hypercholesterolemia.

Yin- and *yang-promoting herbs* restore balance and replenish cellular constituents. Yin herbs lycium (*Lycium chinense*), schisandra (*Schisandra chinensis*), glossy privet (*Ligustrum lucidum*), rehmannia (*Rehmannia glutinosa*), and others support myocardial metabolism, improve hypoxia tolerance, lower oxygen consumption, and increase coronary perfusion, adenosine triphosphate, and glucagon content. Yang herbs barrenwort (*Epimedium grandiflorum*), psoralea (*Cullen corylifolium* syn. *Psoralea corylifolia*), and eucommia (*Eucommia ulmoides*) activate cellular metabolism, especially catabolism, and dilate coronary arteries, easing blood flow.

Other Asian herbalists use over 200 hypoglycemic plants in diabetes, including foods such as wheat (*Triticum* spp.), celery (*Apium* spp.), ginger (*Zingiber officinale*), and pumpkin (*Cucurbita pepo*). Ginseng and ginkgo (*Ginkgo biloba*) are said to exert benefits in diabetes and its complications. Herbs frequently used in diabetes include glucose regulators such as bitter gourd (*Momordica charantia*) and jambolan (*Syzygium cumini* syn. *Eugenia jambolana*), the Ayurvedic fibrosis improver ponkoranti (*Salacia oblonga*), and lipid-lowering garlic (*Allium sativum*).

Multifactorial therapies offered by herbs are well-suited to treating diabetes, complementing necessary mainstream medicines and relieving some complications. Plant products that act on nucleic receptors may provide new therapies for impaired glucose and lipid metabolism.

—Mariann Garner-Wizard

The American Botanical Council has chosen not to reprint the original article.