



HerbClip™

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RE: Natural Products for High Blood Pressure and Hypotension Reviewed

Richard C, Jurgens M. Effects of natural health products on blood pressure. *Ann Pharmacother.* 2005;39:712–720.

Hypertension increases the risk for cardiovascular disease (CVD) and death and affects up to 25% of the U.S. population. The prevalence of high blood pressure increases with age, with more than one half of those older than 65 years having hypertension.¹ The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC-7), defined high blood pressure as $\geq 140/90$ mm Hg. The JNC-7 also concluded that "beginning at 115/75 mm Hg, CVD risk doubles for each increment of 20/10 mm Hg."² The current article surveyed the research on natural health products (NHPs) for their effects on blood pressure with the goal of helping healthcare professionals "be prepared to manage patients who choose to combine NHPs with allopathic therapies."

Searches were conducted on PubMed, the Cochrane Library, *International Pharmaceutical Abstracts*, and the Iowa Drug Information Services using the keywords medicine, herbal plants, medicinal plant preparations, phytotherapy, angiosperms/therapeutic use, gymnosperms/therapeutic use, ethnopharmacology, pharmacognosy, blood pressure, hypertension, hypotension, and diuretics. The search was further refined by restricting the results to English-language articles and to research published no earlier than 1980. Included were animal and human in vivo trials, case reports, in vitro studies, and "theoretical prediction based on chemical constituents." Excluded from the analysis were articles "describing the effects of vitamins and minerals" and NHPs "used in Traditional Chinese Medicine (TCM)...due to the fact that they are used as complex mixtures, making interpretation of the effect of a single herb more difficult."

Twenty-five NHPs were identified as affecting blood pressure, 16 of which were categorized as hypotensives and nine as hypertensives. Those herbs reported to have hypertensive effects were blue cohosh (*Caulophyllum thalictroides*), dong quai (*Angelica sinensis*), ephedra (*Ephedra sinica*; a.k.a. ma huang), American ginseng (*Panax*

quinquefolius; the authors also included eleuthero (a.k.a. Siberian ginseng; *Eleutherococcus senticosus*) in with American ginseng), licorice (*Glycyrrhiza glabra*), and yohimbe (*Pausinystalia johimbe*). Most of the evidence for the hypertensive effects of herbs was based on case reports; however, the hypertensive effects of licorice and yohimbe are supported by clinical trials.

Evidence for hypotensive effects of herbs in humans was found for seven herbs, including garlic (*Allium sativum*), Korean red ginseng (*Panax ginseng*), ginseng (unspecified *Panax* species), St. John's wort (*Hypericum perforatum*), and tripterygium (a.k.a. thunder god vine; *Tripterygium wolfordii*), and for Coenzyme Q10 (CoQ10), which they included in their analysis as an herb. Garlic also decreased blood pressure in several studies in rats. The mechanisms of action for garlic's hypotensive effects are due to its allicin content, which "is a vasodilator in the pulmonary vascular bed" and by angiotensin converting enzyme (ACE) inhibition. ACE increases blood pressure, so inhibiting it decreases blood pressure. ACE inhibitors are a commonly prescribed class of hypotensive drugs.

Four randomized, placebo-controlled trials using CoQ10 for 8–12 weeks showed a decrease of 6–19 mm Hg systolic and 2–16 mm Hg diastolic. A meta-analysis showed that dried garlic powder can reduce blood pressure by 7.7 mm Hg lower than with placebo, while a systematic review of 30 clinical trials did not show significant reductions in blood pressure in 27 of those trials. Consumption of 4.5 g/day Korean red ginseng lowered blood pressure 4.3 mm Hg in one clinical trial, and systolic and diastolic blood pressure were significantly reduced in a second trial.

A review of studies conducted on animals produced an even longer list of herbs that lowered blood pressure. These included African mistletoe (*Loranthus ben-wensis*), Scotch broom (*Cytisus scoparius*), black cohosh (*Cimicifuga* spp.), cat's claw (*Uncaria tomentosa*), garlic, ginger (*Zingiber officinale*), ginkgo (*Ginkgo biloba*), Korean red ginseng, eleuthero (*Eleutherococcus senticosus*), goldenseal (*Hydrastis canadensis*), hawthorn (*Crataegus laevigata*), mistletoe (*Viscum album*), and stinging nettle (*Urtica dioica*). Clinical trials, however, failed to show a hypotensive effect of ginkgo or hawthorn (*C. laevigata*). The authors use *C. oxyacantha* instead of *C. laevigata*, apparently not realizing that they are the same.

While many herbs are included in this review, most of the evidence presented is based on case reports. Few clinical trials exist for single herbs and the authors conclude, "little definitive evidence is available." While additional clinical trials need to be performed, this research is limited by the fact that combination products, or formulas using multiple herbs, were not included. Herbalists and clinicians trained in botanical medicine, such as naturopathic doctors (NDs) and TCM practitioners, seldom if ever use a single herb to treat hypertension. Instead, combinations of herbs are frequently given. In this model, plant constituents work synergistically to provide their therapeutic effects. Isolating one plant or even one constituent from this plant, applies a pharmaceutical model of healthcare on what traditionally has been a holistic approach to diagnosis and treatment.

Finally, some clinically relevant research was omitted. A three-year study during which 19 volunteers were given 50 ml (1.33 ounces) pomegranate (*Punica granatum*) juice per day resulted in a significant mean decrease of 12 mm Hg in systolic blood pressure after one month ($P < 0.05$) and a 21 mm Hg decrease in after one year compared to baseline ($P < 0.01$).³ In another clinical trial, volunteers were able to decrease their hypertensive medication by 48% by consuming 4 tablespoons per day of extra virgin olive oil (*Olea europea*), equivalent to 40 g/day oil.⁴ Consumption of 60 g/day dry weight of oatmeal or 40 g/day oat bran⁵, and consuming 3.3 g/day wakame (*Undaria pinnatifida*),⁶ a seaweed, have also been shown in clinical trials to reduce blood pressure. Plants consumed both as foods and as pre-encapsulated dietary supplements can affect blood pressure.

—John Neustadt, ND

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