

# SYSTEMATIC REVIEWS AND META-ANALYSES SUPPORT THE EFFICACY OF NUMEROUS POPULAR HERBS AND PHYTOMEDICINES

Mark Blumenthal

Mark Blumenthal is founder and executive director of the non-profit American Botanical Council ([www.herbalgram.org](http://www.herbalgram.org)), editor of its journal, *HerbalGram*, and senior editor of *The Complete German Commission E Monographs—Therapeutic Guide to Herbal Medicines* and *The ABC Clinical Guide to Herbs*. (*Altern Ther Health Med.* 2009;15(2):14-15.)

There has been controversy in the past decade about the pros and cons of evidence-based medicine (EBM). Proponents argue that EBM is the best way to assess the safety and efficacy of various therapeutic interventions, whether they be conventional pharmaceutical drugs or phytomedicines derived from herbs. Many in the complementary and alternative medicine (CAM) scientific community believe that EBM methods of assessment, primarily the randomized controlled clinical trial (RCT), are often too simplistic and reductionistic to appropriately and successfully measure the effectiveness of herbal and other CAM interventions.

Much concern about EBM has been voiced in the wake of numerous highly publicized RCTs with negative outcomes, from which the public frequently receives the misleading and erroneous bottom-line message that herb x “does not work” for anything, much less the thing for which it was being tested. Such misleading publicity has followed the publication of RCTs on preparations made from St John’s wort (SJW, *Hypericum perforatum*), echinacea (*Echinacea* spp), garlic (*Allium sativum*), ginkgo (*Ginkgo biloba*), saw palmetto (*Serenoa repens*), and other popular herbs.

Without getting bogged down in the polemics of EBM, it is worth noting that numerous recent systematic reviews and meta-analyses of RCTs continue to support the safety and clinical benefits of select herbs and popular phytomedicines in the North American marketplace. And most of this information is routinely ignored by the US news media. As the saying attributed to veteran newsman Walter Cronkite goes, “A story called ‘All the Planes Landed Safely Last Night’ is not a story.”

Probably the most significant systematic review to be published recently and which has gone virtually unnoticed in the media is the October 2008 publication by the Cochrane Library. This was the revised meta-analysis of RCTs on St John’s wort by Klaus Linde et al.<sup>1</sup> Twenty-nine RCTs on various SJW prepara-

tions met the inclusion criteria (covering a total of 5489 patients); 18 RCTs compared SJW with placebo, and 17 RCTs compared SJW with conventional pharmaceutical antidepressants. The authors conclude, “The available evidence suggests that the hypericum extracts tested in the included trials a) are superior to placebo in patients with major depression; b) are similarly effective as standard antidepressants; c) and have fewer side effects than standard antidepressants.” Why was this information not communicated in the media? First, Cochrane does not publish press releases on its reviews. Second, as many observers are aware, the media tends to prefer to run stories about negative findings.

The perennial favorite, garlic, has been used in recent folklore for various cardiovascular conditions and has been promoted for both blood lipid reduction and as a mild hypotensive, in addition to its empirically documented antiviral effects. Although recent RCTs have shown negative results on the lipid-lowering activity of garlic preparations, a recent review supports confirmed mild blood pressure (BP)-lowering effects.<sup>2</sup> Of 25 controlled and uncontrolled trials published between 1955 and 2007 measuring garlic’s activity on BP, 11 trials met inclusion criteria: 9 RCTs compared garlic preparations to placebo, and 2 trials compared the effect of garlic on BP in addition to a conventional hypotensive drug (N=525). There was a significant positive difference between measurements of systolic BP in the garlic groups compared to placebo, while there was no significant difference in diastolic BP. The authors concluded, “This systematic review and meta-analysis suggest that garlic preparations are superior to placebo in reducing blood pressure in individuals with hypertension.”<sup>2(p13)</sup> This welcome news was reported in the British and Chinese media; it was ignored in the United States.

Among its various adaptogenic properties, Asian ginseng (*Panax ginseng*) traditionally has been used for what has been called “old man’s disease” (ie, erectile dysfunction [ED]). In a recent review of 28 trials on ginseng and ED-related effects, 7 RCTs met inclusion criteria.<sup>3</sup> These RCTs, using preparations of Korean red ginseng root (fresh roots subjected to steaming), included a total of 363 men (aged 24-70 years). The duration of treatment ranged from 4 to 12 weeks, with total daily doses ranging from 1800 mg to 3000 mg. Six trials reported an improvement in erectile function in subjects taking red ginseng

compared to subjects taking placebo. A meta-analysis of data from the 7 trials suggests that red ginseng is superior to placebo in improving ED. Though the total number of subjects was relatively low and the methodological quality of the trials suggests the need for more rigorous future research, these results are consistent with traditional use and suggest likely benefit of this type of ginseng.

Echinacea has received much attention in the past few years, most of it negative, based on negative results of at least one high-profile trial published in *The New England Journal of Medicine*.<sup>4</sup> A 2008 publication on echinacea reviewed 3 recent meta-analyses on echinacea RCTs.<sup>5</sup> This review included attempts to meta-analyze RCTs on various types of echinacea preparations and 1 meta-analysis reviewing 3 RCTs testing one commercial preparation (Echinaforce, Bioforce AG, Switzerland).<sup>6</sup> The Woelkart review supports the meta-analysis by Schoop et al. The reviewers, two of whom are acknowledged experts and the third (noted for conducting systematic reviews on SJW and other herbs) concluded:

*As with most medications for the treatment of the common cold, the clinical data on Echinacea so far are not conclusive. There is a clear indication that preparations from the aerial parts and roots of Echinacea purpurea may be effective. However, more studies with precisely standardized products (pressed juices and tinctures) are necessary in various clinical settings, also for prevention. So far in preventative trials, only a trend in inhibition of the development and severity of colds could be demonstrated. Preparations from Echinacea angustifolia and E pallida roots need further controlled clinical trials, in order to provide a better evidence for clinical efficacy. In addition to studies with laboratory-measured biomarkers, more studies on patient-oriented quality-of-life measures are also needed.*<sup>5(p637)</sup>

The bottom line appears to be that although there is still much work to be done and much confusion still reigns, there is a substantial and growing body of evidence supporting the efficacy of various types of echinacea.

It has long been my contention that every cardiologist should be familiar with the clinical pharmacology and overall safety of hawthorn (*Crataegus monogyna*, *C laevigata*, syn, *C oxyacantha*) leaf and flower extract. Many experts believe that this preparation, popular in Europe, particularly Germany, should become part of standard primary or at least adjunct therapy for patients with stage I or II congestive heart failure. The authors of a recent editorial and systematic review wrote, “Cardiovascular disease is currently one of the leading causes of mortality and morbidity world-wide. The increase in interest in *Crataegus* as a therapeutic tool in the treatment of some cardiovascular illnesses appears justified, in spite of some ambivalent results recorded from various clinical trials.”<sup>7(p1153)</sup> They reviewed results of 6 RCTs (durations 4-16 weeks), a nonrandomized cohort study (8 weeks), and a pro-

spective cohort study (2-5 years) of hawthorn extracts conducted between 1990 and 2008. These trials—conducted on patients with diabetes, hypertension, or cardiac disorders—demonstrated numerous beneficial effects (eg, reduction in blood pressure, increase in circulatory stress tolerance, and improvements in exercise capacity, fatigue, stress dyspnea, and palpitations). A systematic review from Edzard Ernst’s prolific group at Exeter and Peninsula Universities in the United Kingdom published by the Cochrane Library in 2008 made similar conclusions.<sup>8</sup> Reviewing 14 RCTs that met inclusion criteria, the authors wrote, “These results suggest that there is a significant benefit in symptom control and physiologic outcomes from hawthorn extract as an adjunctive treatment for chronic heart failure.”

There have been numerous additional systematic reviews and meta-analyses that continue to support the judicious safe and effective use of various popular herbs and phytomedicinal products for self-care and in healthcare. Another example of a less recent but still important review is the 2002 Cochrane review supporting the safety and efficacy of saw palmetto (*Serenoa repens*) preparations for the treatment of symptoms of benign prostatic hyperplasia.<sup>9</sup> All too frequently, however, glaring exposure in the media of one high-profile negative trial becomes “the conversation,” with the larger body of clinical research, as well as highly relevant epidemiological and other non-RCT-based data, being relegated to a cognitive Twilight Zone. Even critics of CAM and herbal medicine in particular frequently fall into the trap of taking refuge under the high-profile negative trial in attempts to dismiss an entire herbal category and, by extension, all herbal preparations in sweeping generalizations that would never be countenanced in a freshman-level course in logic, much less the “evidence-based” practice of medicine.

#### REFERENCES

1. Linde K, Berner MM, Kriston L. St John’s wort for major depression. *Cochrane Database Syst Rev*. 2008;(4):CD000448.
2. Ried K, Frank OR, Stocks NP, Fakler P, Sullivan T. Effect of garlic on blood pressure: a systematic review and meta-analysis. *BMC Cardiovasc Disord*. 2008;8:13.
3. Jang D-J, Lee MS, Shin B-C, Lee Y-C, Ernst E. Red ginseng for treating erectile dysfunction: a systematic review. *Br J Clin Pharmacol*. 2008;66(4):444-450.
4. Turner RB, Bauer R, Woelkart K, Hulsey TC, Gangemi DJ. An evaluation of *Echinacea angustifolia* preparations in experimental rhinovirus infections. *N Engl J Med* 2005;353(4):341-348.
5. Woelkart K, Linde K, Bauer R. Echinacea for preventing and treating the common cold. *Planta Med*. 2008;74(6):633-637.
6. Schoop R, Klein P, Suter A, Johnston S. Echinacea in the prevention of induced rhinovirus colds: a meta-analysis *Clin Ther*. 2006;28(2):174-183.
7. Furey A, Tassell M. Towards a systematic scientific approach in the assessment of efficacy of an herbal preparation: hawthorn (*Crataegus* spp.). *Eur J Heart Failure*. 2008;10(12):1153-1157.
8. Pittler MH, Guo R, Ernst E. Hawthorn extract for treating chronic heart failure. *Cochrane Database Syst Rev*. 2008;(1):CD005312.
9. Wilt T, Ishani A, MacDonald R. *Serenoa repens* for benign prostatic hyperplasia. *Cochrane Database Syst Rev*. 2002;(3):CD001423.