

STATE-OF-THE-ART PAPER

Use of Herbal Products and Potential Interactions in Patients With Cardiovascular Diseases

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More than 15 million people in the U.S. consume herbal remedies or high-dose vitamins. The number of visits to providers of complementary and alternative medicine exceeds those to primary care physicians, for annual out-of-pocket costs of \$30 billion. Use of herbal products forms the bulk of treatments, particularly by elderly people who also consume multiple prescription medications for comorbid conditions, which increases the risk of adverse herb-drug-disease interactions. Despite the paucity of scientific evidence supporting the safety or efficacy of herbal products, their widespread promotion in the popular media and the unsubstantiated health care claims about their efficacy drive consumer demand. In this review, we highlight commonly used herbs and their interactions with cardiovascular drugs. We also discuss health-related issues of herbal products and suggest ways to improve their safety to better protect the public from untoward effects. (J Am Coll Cardiol 2010;55:515-25)

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Herbal supplements have been used for thousands of years in the East and have had a recent resurgence in popularity among consumers in the West. More than 15 million people in the U.S. consume herbal remedies or high-dose vitamins, and the total number of visits to complementary and alternative medicine (CAM) providers far exceeds those to primary physicians (Fig. 1A), amounting to more than \$34 billion out-of-pocket costs for CAM annually (1) (Fig. 1B). Of the \$37.1 billion spent for weight-loss products in 2001, \$17.7 billion was for dietary and herbal weight-loss supplements, a number projected to increase by 6% to 7% per year (2). Multiple factors contribute to the increased use of CAM, including the obesity epidemic, the prevalence of chronic disorders and pain syndromes, anxiety, depression (Fig. 1C), the general desire for good health and wellness, disease prevention, the increasing cost of conventional medicines, and the traditional belief that CAM is safer and more effective than prescription drugs that commonly have adverse effects.

Herbs, generally defined as any form of plant or plant product, constitute the largest proportion of CAM use in the U.S. (Fig. 2). Because herbs are regarded as food products, they are not subject to the same scrutiny and regulation as traditional medications. As a result, manufac-

turers are exempt from pre-market safety and efficacy testing before the release of an herbal product and from any post-marketing surveillance. Although herbal remedies are perceived as being natural and therefore safe, many have adverse effects that can sometimes produce life-threatening consequences.

Despite the paucity of scientific evidence about the safety or efficacy of herbal products, widespread promotion of CAM products in the popular media and unsubstantiated health care claims seem to be driving their demand and forcing even conventional medical practitioners to incorporate CAM therapies into their practices. In 2 nationwide surveys conducted in 1990 and 1997, Eisenberg et al. (1,3) found an increased number of visits to CAM providers from 427 million to 629 million, whereas the number of visits to primary physicians remained, in essence, unchanged (Fig. 1A). Millions of people are therefore exposed to the risk of these potential adverse interactions, especially with products that contain several herbs.

The use of herbal supplements is prevalent among patients who are taking prescription medications, particularly senior citizens (4). Yet few clinical studies have systematically assessed potential interactions between herbs and medications (5). Most patients do not readily disclose their use of CAM to their health care providers (1), and physicians may not routinely ask about such use. As a result, dangerous herb-drug interactions may be missed. However, potentially serious consequences might be avoided by obtaining a more careful history about CAM use. In this review, we highlight some common herbal remedies used, their adverse cardiovascular effects, and their potential interactions with cardiovascular drugs. We also discuss

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Abbreviations and Acronyms

- BPH** = benign prostatic hypertrophy
- CAM** = complementary and alternative medicine
- CHF** = congestive heart failure
- FDA** = U.S. Food and Drug Administration

issues about the use of herbal products and suggest ways to improve their safety.

Search Strategy and Selection Criteria

A search of the PubMed and Medline databases was performed for the years 1966 to 2008 using the search terms cardiovascular agents, complementary therapies, herb–drug interaction, and cardiovascular disease interactions to identify citations, abstracts, and articles on herbs and cardiovascular disease.

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Cardiovascular Adverse Effects of Herbal Remedies

Patients are increasingly using herbal products for purportedly preventive and therapeutic purposes (6). Some products have direct effects on the cardiovascular or hemostatic system, whereas others have indirect effects through inter-

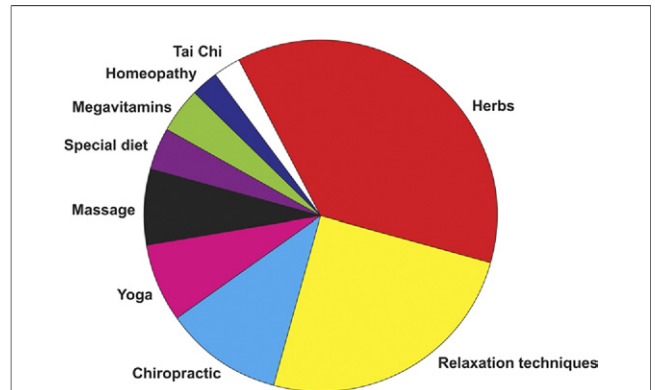


Figure 2 Types of Complementary and Alternative Medicine Used by U.S. Consumers

Data from Tindle HA, Davis RB, Phillips RS, Eisenberg DM. Trends in use of complementary and alternative medicine by US adults: 1997–2002. *Altern Ther Health Med* 2005;11:42–9.

actions with medications that could lead to serious consequences (4). Common herbal remedies that produce adverse effects on the cardiovascular system include St. John’s wort,

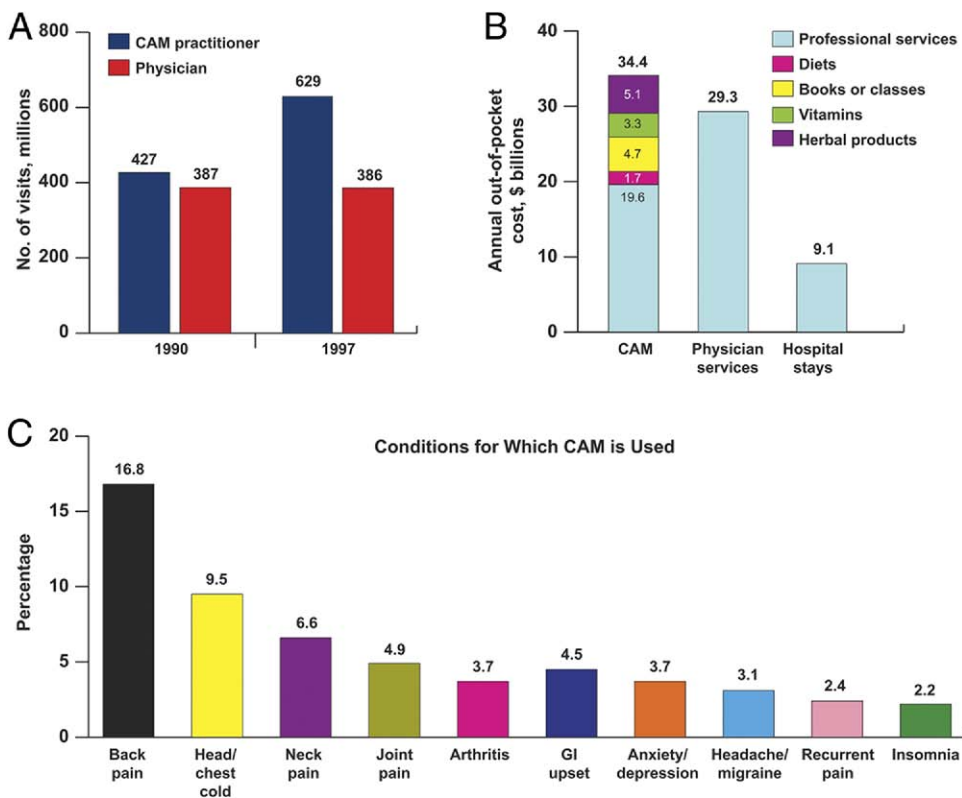


Figure 1 Comparison of Number of Visits, Costs, and Conditions Treated Medically or by CAM

(A) Annual visits to physicians versus those to complementary and alternative medicine (CAM) practitioners. Adapted, with permission, from Eisenberg et al. (1). (B) The costs of CAM services by type compared with the costs of physician services and hospitalizations. Adapted, with permission, from Eisenberg et al. (1). (C) The most common conditions for which CAM therapies are used in the U.S. Data from Barnes PM, Powell-Griner E, McFann K, Nahin RL. Complementary and alternative medicine use among adults: United States, 2002. *Advance data from vital and health statistics*; no 343. Hyattsville, MD: National Center for Health Statistics, 2004. GI = gastrointestinal.

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