



REVIEW

## Herbal Medicines and Perioperative Care

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**T**HERE IS INCREASING PUBLIC enthusiasm for herbal medications. Two recent surveys have found widespread use among the periprocedural population.<sup>1,2</sup> Morbidity and mortality associated with herbal medications may be more likely in the perioperative period because of the polypharmacy and physiological alterations that occur.<sup>3</sup> Such complications include myocardial infarction, stroke, bleeding, inadequate anal analgesia, prolonged or inadequate anesthesia, organ transplant rejection, and interference with medications indispensable for patient care.

Of the herbal medications that clinicians are likely to encounter, we have identified 8 of the herbs that potentially pose the greatest impact for the care of patients undergoing surgery. These herbs account for more than 50% of all single herb preparations among the 1300 to 1400 herbal medications sold in the United States.<sup>4</sup> Nonherbal dietary supplements, such as vitamins, minerals, amino acids, and hormones, are beyond the scope of this review. Some of these nonherbal dietary supplements that patients undergoing surgery are more likely to take, such as glucosamine and chondroitin for osteoarthritis,<sup>5</sup> appear to be safe. Limited information is available, however, on the use of these supplements in the periprocedural population.

In this article, we consider safety and US regulatory issues for herbal medications, review the literature on the identified 8 commonly used herbal

**Context.** Widespread use of herbal medications among the periprocedural population may have a negative impact on perioperative patient care.

**Objectives.** To review the literature on commonly used herbal medications in the context of the perioperative period and provide rational strategies for managing their perioperative use.

**Data Sources.** The MEDLINE and Cochrane Collaboration databases were searched for articles published between January 1960 and December 2000 using the search terms herbal medicine, phytotherapy, and alternative medicine and the names of the 8 most commonly used herbal medications. Additional data sources were obtained from manual searches of recent journal articles and textbooks.

**Study Selection.** We selected studies, case reports, and reviews addressing the safety and pharmacology of 8 commonly used herbal medications for which safety information pertinent to the perioperative period was available.

**Data Extraction.** We extracted safety, pharmacodynamic, and pharmacokinetic information from the selected literature and reached consensus about any discrepancies.

**Data Synthesis.** Echinacea, ginseng, garlic, ginkgo, ginseng, kava, St John's wort, and valerian are commonly used herbal medications that may pose a concern during the perioperative period. Complications can arise from these herbs' direct and pharmacodynamic or pharmacokinetic effects. Direct effects include bleeding from garlic, ginkgo, and ginseng; cardiovascular instability from ephedra; and hypotension from ginseng. Pharmacodynamic herb-drug interactions include potentiation of the sedative effect of anesthetics by kava and valerian. Pharmacokinetic herb-drug interactions include increased metabolism of many drugs used in the perioperative period by St John's wort.

**Conclusions.** During the perioperative evaluation, physicians should explicitly elicit and document a history of herbal medication use. Physicians should be familiar with the potential perioperative effects of the commonly used herbal medications to prevent, recognize, and treat potentially serious problems associated with their use and discontinuation.

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medications as they affect perioperative care, and propose rational strategies for managing the perioperative use of these agents. The prevention, recognition, and treatment of complications begin with explicitly eliciting and documenting a history of herbal medicine use. Familiarity with the scientific literature on herbal medications is necessary because the current US regulatory mechanism for commercial herbal preparations sold in the United States does not necessarily protect the population against unpredictable or undesirable effects. Our goal is to provide a framework for physicians practicing in the contemporary environment where widespread herbal medicine use occurs.

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