

# Herbal Medicines: What do we need to know?

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## Abstract

2000 BC--Here, eat this root.

1000 AD--That root is heathen; here, say this prayer.

1850 AD--That prayer is superstition. Here, drink this potion.

1940 AD--That potion is snake oil. Here, swallow this pill.

1985 AD--That pill is ineffective. Here, take this antibiotic.

2000 AD--That antibiotic doesn't work anymore. Here, eat this root.

-Author Unknown

We have truly come full circle. Man started using plants and plant parts for medicinal purposes over sixty thousand years ago. Our fascination with all things 'natural' continues to grow and intensify. Perhaps it is multi-factorial: disillusionment with established medical practice and/or managed care, loss of the traditional doctor-patient relationship, inconsistent access to medical care, or possibly the rising costs of medical care. We certainly cannot discount the impact of slick marketing initiatives by "natural products" companies who clearly have a captive audience.

The American public has repeatedly bought into the adage "if it is natural, it must be safe!". Webster's defines 'natural' as "having or constituting a classification based on features existing in nature?...the external world in its entirety." It is a dangerous and inaccurate assumption to believe that herbal products are necessarily safe, even if one looks only as far as this definition. We certainly would not chew on dried or fresh foxglove leaves (*digitalis purpurea*) for our lower abdominal ulcers or to enhance wound healing as the lore of folk medicine would teach us. The cardiac glycosides, analogues of which are still in use today, were originally isolated from this botanical. Digoxin, however, went through the FDA's approval process that requires randomized, double-blind, placebo-controlled studies.

Eisenberg, et al, estimate that one in five U.S. adults taking prescription medications also use herbal medications,

megavitamins or both. These investigators found that, in 1997, we spent over \$10 billion, out-of-pocket, on these products. Data extrapolation allowed them to calculate that approximately 15 million people in the U.S. alone, who use herbal medicinals or megavitamins in combination with prescription medications, may be at risk for adverse interactions.

This sobering data forces us as anesthesiologists to raise our level of awareness concerning the potential effects and possible interactions that these products may have on the patient (who may or may not use prescription medications) who is preparing to undergo surgery.

## OVERVIEW AND HISTORICAL PERSPECTIVE

The oldest 'prescriptions' in recorded history are on Babylonian clay tablets and ancient Egyptian papyrus and they consisted of hundreds of different botanicals and foods. Plants and herbals are a part of many traditional healing practices including: Chinese medicine, Ayurveda, a holistic system originated in the Vedic civilization of India, curanderismo, a Mexican American healing tradition, as well as in the practice of western herbalism. Many botanical compounds were the basis of medical pharmacotherapeutics in the U.S. as recently as the 1930's. The World Health Organization estimates that up to 80% of the world's population still depend on herbal medicines.

Because of the tremendous variations in botanical nomenclature, species and locale, as well as the issue of intercultural variation, it becomes an arduous burden at best, to understand the complexity of possible drug interactions that we might need to be aware of in the provision of safe perioperative care. At the very least, we should be aware of possible effects of the most commonly sold herbs in the United States.

As of 1999, herbal medicinals still do not go through the costly (>\$230 million) Food and Drug Administration

(FDA) drug approval process. Plants and parts of plants are not patent-eligible. As such, they are not defined as “drugs” but rather as dietary supplements that undergo scrutiny similar to commercially available foods. Therefore, the FDA can only “suggest” but not require manufacturers of herbal products to provide reproducible, evidence-based scientific data to the consumer. The FDA has no control over the herbal industry in terms of safety guidelines regulating consistency and purity of compounds, or over labeling accuracy, manufacturing, or the promotion of health claims for each product.

### BRIEF REVIEW OF SIDE EFFECTS

Perhaps the most devastating side-effects and interactions that we need to be aware of as anesthesiologists are cardiovascular instability, prolongation of anesthesia, and bleeding, particularly in conjunction with other anticoagulants such as warfarin. Ephedra sinica (ma-huang), an ingredient in many over-the-counter diet aids, may cause deadly sympathomimetic effects, particularly in conjunction with heart glycosides, guanethedine or other prescription medications. Multiple deaths, primarily as a result of strokes and myocardial infarctions, have been attributed to these products. Panax ginseng (ginseng) may cause tachycardia or hypertension, particularly in combination with other cardiac stimulant drugs. In addition, this herbal may also decrease the effectiveness of warfarin (decreased International Normalized Ratio [INR]). Tanacetum parthenium (feverfew), commonly used as a migraine prophylactic, may enhance bleeding by possible inhibition of platelet activity. Warfarin may also be potentiated by concomitant use of Allium Sativum (garlic), Ginkgo biloba (ginkgo), or by Zingiber officinale (ginger). Valeriana officinalis (valerian), Piper methysticum (kava-kava), and possibly ypericum perforatum (St. John’s Wort) may all prolong the sedative effects of anesthesia. Glycyrrhiza glabra (licorice) or Hydrastis canadensis (goldenseal) may cause or worsen hypertension and/or edema.

### EDUCATIONAL INITIATIVES

The American Society of Anesthesiologists (ASA) is taking a leading role in educating physicians and patients alike regarding the importance of gaining and maintaining an accurate and thorough medication history including herbal medicines, megavitamins and other supplements. Unfortunately, to date, very few series of studies using consistently produced active ingredients are available on any of these products; much of the information that we have is anecdotal at best.

Dr. John Neeld, immediate Past-President of the ASA and Dr. Mike Roizen, Professor and Chair of the Department of Anesthesiology at the University of Chicago were featured in an ASA produced Video News Release (VNR), initially released in March 1998, that reached an estimated 38 million viewers. The VNR featured a succinct and timely message alerting the public to the potential risks of herbal medicines during surgery as well as the tremendous importance of notifying your physician of your herbal use habits.

Two educational brochures have just been made available by the ASA: What You Should Know About your Patients’ Use of Herbal Medicines and a patient information booklet entitled What You Should Know About Herbal Use and Anesthesia. Both of these brochures are available through the publications office at ASA headquarters at 847-825-5586. These are excellent pamphlets to use for distribution, both to physicians and health care providers, as well as to patients. Each piece features brief side effect profiles in table form for many of the most commonly used products. The Communications Booth at the 1999 ASA annual meeting in Dallas, Texas featured this information in poster form.

### TAKE-HOME MESSAGES

When contemplating this extremely complex subject, it is important to remember the following:

- ‘Natural’ does not necessarily mean safe.
- Do ask your patients what they are taking.
- At this time, much of the available information is anecdotal. More double-blind, placebo-controlled studies are needed. Active ingredients are not consistent study to study making it difficult to extrapolate meaningful data from many studies.
- These products are not patent-eligible and they are not regulated by the FDA.
- Patients should be encouraged to discontinue these products two weeks prior to surgery.

Author’s Note: This article was originally published in the ASA Newsletter, March 2000. It has been updated and enlarged.

### SUGGESTED READING

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