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Alternative Medicine Use in Presurgical Patients

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Background: **A dramatic increase in the use of complementary and alternative medicines has been observed. The use of such remedies in the presurgical population has implications for the anesthesiologist because of the potential for drug interactions, side effects, and medical liability. This study was undertaken to quantify the use of herbal remedies and vitamins in the presurgical population of a large tertiary care center.**

Methods: **A one-page questionnaire was distributed to all patients presenting for evaluation in the preoperative clinic over an 11-week period. Patients answered questions regarding use of prescription and nonprescription medications, herbal remedies, and vitamins.**

Results: **Twenty-two percent of presurgical patients reported the use of herbal remedies, and 51% used vitamins. Women and patients aged 40–60 yr were more likely to use herbal medicines. Over-the-counter medication use was strongly associated with herbal preparation use. The most commonly used compounds, from highest to lowest, included echinacea, gingko biloba, St. John's wort, garlic, and ginseng.**

Conclusions: **Alternative medicine use is common in the preoperative period. (Key words: Herbal medicine; preoperative evaluation.)**

COMPLEMENTARY and alternative medicine (CAM) has been defined as follows:

> A broad domain of healing resources that encompasses all health systems, modalities, and practices and their accompanying theories and beliefs, other than those intrinsic to the politically dominant health system of a particular society or culture in a given historical period. CAM includes all such practices and ideas self-defined by their users as preventing or treating illnesses or promoting health and well-being.[1,2]

Within the CAM domain, a substantial increase in the use of herbal remedies and vitamins has been observed during the past decade, with at least 15 million adults concurrently taking these remedies with prescription medications.[1] Although the suggested therapeutic effects of many of these remedies have not been rigorously demonstrated with evidence-based research, reports suggesting adverse effects of some of these products in the surgical population as the result of their use or interactions with other pharmaceuticals has been reported.[3-6]

Anecdotally, we noted that anesthesia providers in the presurgical and postsurgical care units frequently discovered that patients were taking alternative remedies not previously documented during the preoperative clinic evaluation. Moreover, we noted that unless specifically asked, most patients did not disclose the use of these alternative therapies, a conclusion confirmed by other studies.[1] Because of the potential adverse effects with alternative remedies, we surveyed patients in the preoperative clinic with the working hypothesis that herbal and vitamin therapy use was common.

This article is highlighted in "This Month in Anesthesiology." Please see this issue of ANESTHESIOLOGY, page 5A.

Methods

Approval for medical record review was obtained from the hospital's Committee for the Protection of Human Subjects. A one-page questionnaire (Appendix 1) was distributed to all patients presenting for preoperative clinic evaluation over a period of 11 weeks (February–May 1999) as part of their preoperative visit with an anesthesiologist or Certified Registered Nurse Anesthetist. The questionnaire recorded age, sex, prescription and nonprescription medications, and herbal remedies. A specific list of 17 commonly used herbal therapies was provided, as well as the opportunity to write in any other remedies taken. Moreover, the patient was asked to

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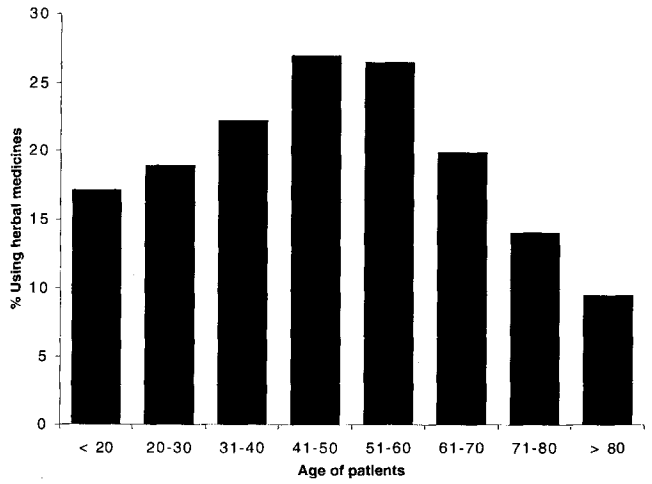

Fig. 1. Incidence of herbal medicine use among age groups.

record the reason for the initiation of the herbal remedies. The completed survey was returned to an anesthesia care provider who asked if there were any questions regarding the survey. Non-English speakers or patients with an inability to read or write were given appropriate assistance to complete the survey. The survey was then used as a part of the preoperative assessment. Results were tabulated and analyzed using appropriate descriptive statistical analysis, and differences between various groups of patients were tested by chi-square analysis with continuity correction. $P < 0.05$ was considered statistically significant.

Results

During the 11-week period, 3,842 patients were evaluated in the preoperative clinic from which 3,106 questionnaires were received completed, for a response rate of 81%. A total of 705 (22%) and 1,634 (51%) patients reported use of herbal medications and vitamins, respectively. Female patients used herbal medicines more frequently than males (23.6% *vs.* 19.2%; $P = 0.0059$). There was significant variation in the incidence of herbal medicine use among age groups (fig. 1), with the greatest use occurring in patients in the fifth and sixth decades of life ($P < 0.0001$ for overall effect of age). The most commonly used medications reported are shown in table 1. Echinacea, gingko biloba, St. John's wort, garlic, and ginseng were the most commonly used preparations in order of highest to lowest use. The relationship between herbal and traditional medication use is shown in table 2. Patients taking nonprescription traditional pharmaceuticals were significantly more likely to use herbal preparations. Regarding reasons that the herbal remedies were started, 21% cited a health care provider recommendation, 36% a recommendation of a friend or family member, 12% a television or magazine advertisement, and 36% responded "decided on their own to start."

Table 1. Herbal Medication Use

Preparation	N Using	% of All Patients	% of Patients Taking Herbal Medications
Aloe	19	0.59	2.7
Cranberry	31	0.97	4.4
Comfrey	4	0.13	0.57
Echinacea	232	7.3	32.9
Garcia	4	0.13	0.57
Garlic	104	3.2	14.8
Ginkgo biloba	129	4.0	18.3
Ginseng	104	3.2	14.8
Goldenseal	44	1.4	6.2
Gotu	8	0.25	1.1
Kava	31	0.97	4.4
Melatonin	52	1.6	7.4
Primrose	37	1.2	5.3
Saw palmetto	26	0.81	3.7
Senna	21	0.65	3.0
Soy	48	1.5	6.8
St. John's wort	106	3.3	15.0
Any other	250	7.8	35.5
Two others	96	3.0	13.6
Three or more others	31	0.97	4.4
Any herbal remedy	705	22.0	100

Discussion

Our results indicate herbal medicine and vitamin use is common in the preoperative population and are consistent with the substantial increase in the use of alternative medical therapies.[1] In 1997, 42% of US adults used CAM, including herbal medicine, megavitamins, massage, self-help groups, folk remedies, energy healing, and home-

Table 2. Relationship between Herbal and Traditional Medication Use: Percent of Patients Taking Herbal Medications among Users and Nonusers of Traditional Medications

	Prescription Drugs	Nonprescription Drugs
Users	(N = 2,369) 21.1	(N = 2,516) 25.8
Nonusers	(N = 2,369) 24.4	(N = 2,516) 8.1
P*	0.055	<0.0001

* By chi-square test with continuity correction.

opathy, compared with 34% in 1990. In addition, in 1997, patient encounters with CAM providers exceeded those with all primary care providers, accounting for a total of 629 *versus* 386 million visits, respectively. These remedies were used most frequently to "prevent future illness from occurring or to maintain health and vitality" and conservatively accounted for $27 billion in out-of-pocket expenditures.[1]

Although the pharmacology of many of these remedies, including pharmacodynamic and pharmacokinetic properties, has yet to be elucidated, reports of adverse events occurring in the perioperative period suggest that anesthesiologists should be more aware of their use.[3,4] This is especially true since it may be some time before randomized controlled clinical trials are performed and reported.[7] Simple analyses of perioperative outcomes in patients taking these remedies may be misleading because, although the labeling of these products now falls under Food and Drug Administration jurisdiction, the products themselves do not go through the Food and Drug Administration approval process and consequently are not required to contain the substances listed on the label in the amounts claimed.[8] An analyses of the active ingredient in ginseng products, for example, noted that the amount varied by a factor of 10 among brands labeled as containing the same amount,[7] with some brands containing none at all.[9] Moreover, patients may be taking widely varying doses of each of these preparations.

Until detailed studies are conducted, the high prevalence of use of these agents in the presurgical population should not be dismissed. Even if the therapeutic, side effect, and drug interaction profiles of these remedies prove to be nonexistent or benign, a dismissal of a patient's perceived value of these remedies may undermine the relationship between the anesthesiologist and the patient.

A communication gap already exists between patients and physicians on the topic of CAM; less than 40% of patients disclose the use of CAM therapies with their physicians.[1] In part, this gap may be due to patient embarrassment or a misunderstanding of the medical relevance of these remedies. Physician failure to realize the prevalence and potential side effects, drug interactions, and medical liability of their use may be responsible as well.[10]

Anesthesiologists are not immune to this potential communication gap. For example, the most recent edition of the largest text in the specialty contains no information on herbal remedies or alternative medical therapies.[11] Specifically directed questions regarding the use of these remedies can be made during the preoperative evaluation, and anesthesiologists should become familiar with the names, purported indications, and actions of the most commonly used agents.

Although no clear data exist regarding adverse anesthetic interactions or the benefit of discontinuing these remedies preoperatively, a variety of side effects and interactions can be associated with these therapies.[4,12–16] Detailed references, including websites, are now available to practitioners who wish to obtain information about these particular therapies.§[4,5,17–20]

A potential weakness of our questionnaire methodology is that it relies on self-reporting; consequently, our results may underreport the actual prevalence of use. Moreover, herbal remedies may potentially fall into a category akin to illicit drugs, wherein even when admonitions regarding potential adverse outcomes were mentioned to the patient, little change in self-reporting was demonstrated.[21] Another weakness is that we did not correlate herbal remedy use with other demographic data, such as diagnosis or type of surgical procedure. This initial study, which indicated common use of these remedies, should be followed by more detailed investigation of the patterns of herbal medicine and vitamin use.

In summary, a significant proportion of presurgical patients use alternative therapies. Although the pharmacologic effects of these herbal medicines and vitamins remain poorly investigated and unclear, the prevalence of their use suggests that they are important to our patient population. As such, we conclude that anesthesia care providers should ask about alternative therapy use during the preoperative assessment, be familiar with their potential side effects and adverse reactions, and begin investigations into their effects during the perioperative period.

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§ www.nal.usda.gov/fnic/IBIDS (National Institutes of Health Office of Dietary Supplements); www.nccam.nih.gov (National Institutes of Health National Center for Complementary and Alternative Medicine); www.cfsan.fda.gov/~dms/aems.html (adverse effects reported to the Food and Drug Administration).

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