Complementary and Alternative Medicine (CAM) Use by Older Adults: A Comparison of Self-Report and Physician Chart Documentation

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**Background.** Older adults are increasingly using complementary and alternative medicine (CAM) dietary supplements and herbal remedies, but may not discuss this with their physicians. When patients do report using CAM, their physicians may not record this information in patient charts.

**Methods.** This cross-sectional analysis compared results of a convenience sample survey with medical charts. Participants were older than 65 and from an urban academic hospital’s ambulatory geriatrics practice. We measured (i) prevalence of CAM use; (ii) proportion of CAM supplements and herbs (CAMsh) reported by patients and documented in patients’ charts; (iii) percentage of patients reporting taking CAMsh with anticoagulant activity (ginger, ginkgo, garlic, and vitamin E) while concomitantly taking prescribed anticoagulant medications, as per chart; and (iv) percentages of those patients for whom the CAM anticoagulant was or was not documented in the chart.

**Results.** We surveyed 212 patients; of those, 182 had available charts. Prevalence of CAM use was 64%. Only 35% of all self-reported supplements were documented in the charts. Of 182 patients, 84 (46%) reported taking CAM with anticoagulant properties: of these, 52% took a prescribed anticoagulant (per chart), while 48% took CAM but not prescribed anticoagulants.

**Conclusion.** CAM use is highly prevalent among older adults. Physicians do not consistently record the use of CAMsh on patients’ charts. This may lead to unrecognized, potentially harmful drug-herb/drug-supplement interactions.

RECENT studies show that the use of complementary and alternative medicine (CAM) is increasing among older adults in the United States (1–3). Regional and national studies focusing specifically on older adults show the prevalence of CAM use ranging from 30% to 58% (4–6). CAM can be defined as a group of health practices not considered to be a part of traditional medical care, not usually taught in U.S. medical schools or commonly available in hospitals, which may or may not be commonly reimbursed by third-party payers (1,3,7,8). CAM practices are diverse and include a variety of unrelated systems of care that may or may not conform to biomedical explanatory models (Table 1). Most people who use CAM do so for chronic, incurable, non-life-threatening conditions, although its use is also common in persons with cancer (9,10) and HIV/AIDS (11–12).

Patients may not discuss CAM use with their physicians (1), and even if they do, physicians may not record that information in the medical chart. In general, information on older adults’ CAM use and their discussions with physicians is lacking. Due to the heterogeneity of CAM healing systems, herbal remedies, and nutritional supplements, their risk:benefit ratios are also quite varied. Just as older adults are susceptible to drug-drug interactions, they may also be equally susceptible to drug-herb or drug-supplement interactions that may potentially result when a CAM supplement or herb (CAMsh) is taken with a prescribed medication. If physicians are unaware of the possible drug-herb/drug-supplement interactions or if they do not document information about CAMsh use in the medical chart, they may unknowingly prescribe medications that have potential interactions with CAM supplements. Previous studies encourage physicians to heighten their awareness of alternative therapies and to discuss herbal supplements with patients in general practice (13), or in specific settings, including surgery (14), perioperative care (15), dermatology (16), and plastic surgery (17).

This study examines two aspects of CAM use by older adults: first, the pattern of documentation of CAMsh use in medical charts by geriatricians and, second, potential situations in which drug-herb/drug-supplement interactions might occur. For the latter, we examined commonly used supplements that have potential anticoagulant activity—ginger, ginkgo, garlic, and vitamin E. These supplements may therefore interact with commonly prescribed anticoagulants (warfarin, aspirin, and nonsteroidal antiinflammatory drugs [NSAIDs]), resulting in bleeding (18–22).

We will briefly review these CAMsh’s mechanisms of action and their reported adverse effects. Ginkgo biloba acts as a platelet activating factor antagonist and may also increase blood flow (23). The ingestion of ginkgo biloba has been linked to spontaneous hyphema, spontaneous subdural hematomas, subarachnoid hemorrhage, and postoperative bleeding (14,18,24–26). Garlic is known to inhibit platelet aggregation, although only at higher doses (seven or more...
clove of garlic per day) (27–31). Ginger is a potent inhibitor of thromboxane synthetase (32). Vitamin E has the potential to interact with warfarin by acting at an early step in the clotting cascade (33). The incidence of such occurrences is low, however, especially if vitamin E is used in low doses (34,35). Combining multiple herbal supplements—including vitamin E (800 IU daily) and ginkgo—has been linked to adverse effects such as postoperative hemorrhage (36). There are potential and documented interactions between these supplements (garlic, ginger, and vitamin E, as well as several other herbs) and warfarin (13, 37,38).

**Methods**

**Participants**

Between August 1998 and August 1999, we administered a survey on CAM utilization to a convenience sample of patients at the primary-care geriatrics practice of a large academic hospital in New York City. Inclusion criteria included being older than 65; having a Mini-Mental State Exam (MMSE) score of more than 21 or primary physician agreement that the patient was a suitable candidate; and written informed consent.

A team of trained interviewers administered a 116-item survey face-to-face in a private section of the waiting area or in an adjacent private room. This study was approved by our Institutional Review Board.

**Survey Development**

The survey included questions on demographics, medical history, medications, list of CAM supplements or modalities used, and more detailed follow-up questions on each of the CAM modalities. The list of CAM modalities and supplements was developed by compiling complementary medical therapies used in prior surveys (1), books (39), and therapies commonly used in our clinical experiences. For ease of administration, the CAM therapies were divided into the following five general categories: vitamins/minerals (e.g., zinc, vitamin C, carotene); herbs or other supplements (e.g., fish oils, ginkgo, ginseng); antiaging medicines (e.g., melatonin, human growth hormone, testosterone); alternative systems of care (e.g., acupuncture, ayurveda, spiritual healing); and self-help/lifestyle methods (e.g., red wine, yoga, tai-chi, macrobiotic diets). After five geriatricians reviewed the survey for content and clarity, it was pilot tested on 10 geriatric patients for understandability, clarity, and length of administration. A list of standardized definitions of various CAM therapies was compiled so that interviewers could give uniform definitions to questions possibly posed by patients during the interview (39,40).

We compared information from the surveys with that found in the progress notes within patients’ charts. All progress notes have a “medications” section that is electronically updated after each visit. The progress notes corresponding to the same date of the survey administration were used for comparison whenever possible. If not, the progress notes from the visit closest to the survey date were used.

For this report, only three categories—vitamins/minerals, herbal/other supplements, and anti-aging medicines—were compared to information on the medical chart because the other two CAM modalities may not necessarily be documented in the “medications” section of the chart. We made an a priori decision not to include multivitamin, calcium, and vitamin D as “alternative” medicines because they are commonly prescribed by physicians for conditions such as osteoporosis.

**Outcomes Measures**

The outcomes measures included (i) prevalence of overall CAM use, (ii) proportion of CAM supplements reported by...
patients also documented in the “medications” section of patients’ charts (Analysis A), (iii) percentage of patients reporting taking CAM supplements with anticoagulant activity (ginger, ginkgo, garlic, and vitamin E) while concomitantly taking prescribed anticoagulant or antiplatelet medications, as indicated in the chart (Analysis B), and (iv) percentages of those patients for whom the CAM anticoagulant was or was not documented in the chart (Analysis B).

Results
Of 244 people approached, 212 people completed the survey (87% response rate). Of the 212 patients surveyed, 30 charts were unavailable because they were in storage and could not be found, they had been borrowed, or their names were no longer in the practice database. Thus, 182 charts (85% response rate) were used for analysis.

Table 2 indicates separate demographics for the included (182) and excluded (30) participants. The 182 included participants were all older than 65 years, predominantly women, and ethnically diverse. Overall, the excluded group was proportionally younger, included more men, and more often tended to be married or partnered.

Prevalence of CAM Use
The rate of all CAM use was 73% (133/182). Considering specifically those CAM supplements used for analysis in this study (vitamins/minerals, herbal/other supplements, anti-aging medications), utilization rate was 64% (117/182).

Analysis A.—Of all supplements reported in the surveys, 35% were documented in the charts. Figure 1 presents the percentage of survey responses with different quartiles of documentation rate. The majority (79%) of CAM supplements reported in surveys had a documentation rate of 50% or less in medical charts. The types of CAM most consistently documented in the chart were vitamin E (documented on chart 49% of the times it was reported on survey), vitamin C (32%), chondroitin sulfate (31%), ginkgo (30%), and minerals (26%). The types of CAM least consistently recorded in the chart were ginger, phytoestrogens, chamomile, aloe vera, and Chinese herbs—each with a 0% documentation rate.

Analysis B.—Figure 2 demonstrates potential anticoagulant drug-herb/drug-supplement interactions between CAM supplements and prescribed anticoagulants in this patient sample. Eighty-four patients (46%) reported taking at least 84 patients (46% of 182) reported taking CAM with anti-coagulant function

44 patients reported taking a CAM anticoagulant
AND
a prescribed anticoagulant was documented in chart:

AT RISK FOR DRUG-HERB INTERACTION

40 patients reported taking a CAM anticoagulant, but are NOT taking a prescribed anticoagulant, per chart: NOT AT RISK FOR DRUG-HERB INTERACTION

32 patients (73% of 44): CAM anticoagulant documented in chart
12 patients (27% of 44): CAM anticoagulant NOT documented in chart

Figure 2. Potential anticoagulant drug-herb/drug-supplement interactions between CAM supplements and prescribed anticoagulants.
one CAMsh with anticoagulant function: vitamin E (57 utilizations), ginkgo (27 utilizations), garlic (26 utilizations), and ginger (18 utilizations), for a total of 128 documented utilizations.

**Discussion**

CAMsh use was highly prevalent in this study population, higher than that reported in the general adult population nationally (1.2) or in other older adult populations (4.6). This study adds to existing reports of CAM use in the older adult population and underscores the importance of physicians being prepared to ask their older patients about CAM use and to discuss potential drug-herb/drug-supplement interactions with them.

In this study, we looked indirectly at the conversations between patients and doctors surrounding medication and supplement use. When we compared patient self-report of CAM use with chart documentation, we found only a 35% rate of chart documentation. This means that about two thirds of the time, CAMsh are not recorded in patients’ charts. It is unclear whether this reflects a lack of discussions surrounding this topic, or a failure to document patient-provider discussions. Either way, this represents missed opportunities for understanding patients’ concerns and needs, as well as for recognizing potential drug-herb/drug-supplement interactions, should they occur.

In this study, certain types of CAM use were better documented compared to others, and they may be those for which more literature is available and/or those that receive more publicity. More obscure types of CAMsh, on the other hand, tend not to be well documented. The relatively high documentation rate of patients on CAM anticoagulants is in part because vitamin E—the CAMsh with the highest documentation rate—accounts for just less than half of the total CAM anticoagulant utilizations. However, it also suggests that doctors may be monitoring doses more carefully due to an awareness of potential drug-herb/drug-supplement interactions. For the 27% of CAM anticoagulants that were not documented, the physicians may have been unaware that their patients were taking them, whether or not they were aware of the potential interaction. For these patients, there could be an increased risk of drug-herb/drug-supplement interactions that go unrecognized.

**Limitations and Strengths**

These results are regional and may not be representative of older adults across the United States. Nevertheless, older adults are a highly heterogeneous group, and their demographic characteristics vary greatly according to region. This may be a case in which more specific descriptions of a population present more useful data than vast generalizations. Also, the fact that the participants represent a diverse group in terms of age range, race/ethnicity, and educational levels makes the group more generalizable. The outcomes measured represented potential bleeding risks due to drug-herb/drug-supplement interactions, rather than actual mishaps due to such interactions.

One of the strengths of the study is that there was a relatively low refusal rate of 13%, but the demographics of those who refused were not recorded. Of the 212 people who participated, 30 charts were unavailable. The older persons corresponding to these charts tended to be younger, more often male, and more often married or partnered. Therefore, it is possible that including these data could have altered the final results somewhat.

As the use of CAM supplements increases, the medical community should continue to learn about pharmacological interactions among drugs and herbs or dietary supplements. Because there are no current standards governing the safety or efficacy of dietary supplements, physicians must educate themselves about drug-herb and drug-supplement interactions and report them as appropriate, in the interest of good patient care and scientific advancement.

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