CLINICAL PRACTICE

Use, Understanding, and Beliefs about Complementary and Alternative Medicines among Emergency Department Patients

STEVEN J. WEISS, MD, KEVIN M. TAKAKUWA, MD, AMY A. ERNST, MD

Abstract. Objectives: To describe the extent of complementary and alternative medicine (CAM) use among emergency department (ED) patients, to evaluate patients' understanding of CAMs, and to determine gender differences in beliefs about CAMs. Methods: This study was a convenience sampling of patients seen in an urban ED. Patient demographics were recorded. A questionnaire was administered that assessed patients' knowledge and use of CAMs. Patients were also asked about their beliefs on safety, medication interactions, and conveying information about these substances to their physicians. **Results**: A total of 350 ED patients were included in the study; 87% had heard of at least one of the CAMs. There was no difference between genders or races concerning knowledge about CAMs. The most commonly known CAMs were ginseng (75%), ginkgo biloba (55%), eucalyptus (58%), and St. John's wort (57%). Forty-three percent of the responders had used CAMs

O NE IN three Americans is using some form of complementary and alternative medicine (CAM). Physicians prescribe 54% of CAMs, and in 1990, there were 425 million visits to providers of unconventional medicine. Complementary and alternative medicines are seen as "natural" and are not controlled by the Food and Drug Administration (FDA). The CAM industry is now a 1.5 billion dollar industry and growing at a rate of more than 15% per year.^{1,2}

In the literature, the term "CAM" applies both to actual medications and to the providers of alternative medical therapies. Other authors have addressed the use of various alternative providers.³

A related commentary appears on page 65.

at some time and 24% were presently using CAMs. The most commonly used CAMs were ginseng (13%), St. John's wort (6%), and ginkgo biloba (9%). All CAMs were considered to be safe by 16% of the patients. Only 67% would tell their doctors they were using CAMs. Females were more likely than males to believe that CAMs do not interact with other medications (15% vs 7%, difference 8%, 95% CI = 2% to 15%). Conclusions: Complementary and alternative medicines are familiar to most patients and used by many of them. Despite this, a large percentage of patients would not tell their physicians about their use of alternative medications. Emergency medicine providers should be aware of the commonly used CAMs, and questions about their use should be routinely included in ED exams. Key words: alternative medications; emergency department. ACADEMIC EMER-**GENCY MEDICINE 2001; 8:41-47**

For the purpose of this paper, we restrict the use of the term CAM to apply to the medications that are considered as alternatives to prescription medications.

Complementary and alternative medicines have been the subject of numerous textbooks. Recently, randomized, double-blind studies have been performed comparing CAMs with other drugs. These trials have looked at alternative medication for various pathologies, such as saw palmetto for prostate problems, St. John's wort for depression, feverfew for migraines, and Echinacea for colds.⁴⁻⁷ Despite the fact that CAMs generally appear safe, case reports of side effects and drug interactions continue to appear.⁸⁻¹⁵

The importance of CAM use to emergency medicine (EM) is just beginning to become apparent. Gulla and Singer looked at all alternative therapies among ED patients and found that herbal remedy use was third in popularity, just behind massage therapy and chiropractic with about a fourth of all ED patients using them. They also found that most patients did not inform their physicians of their use of alternative therapies and

From the UC Davis Medical Center, Sacramento, CA (SJW, KMT, AAE).

Received April 18, 2000; revision received July 5, 2000; accepted July 14, 2000. Presented at the ACEP Research Forum, Las Vegas, NV, October 1999.

Address for correspondence and reprints: Steven Weiss, MD, Division of Emergency Medicine, 2315 Stockton Boulevard, PSSB 2100, Sacramento, CA 95817. Fax: 916-734-7950; e-mail: sjweiss@ucdavis.edu

suggested that emergency physicians (EPs) should routinely question their patients on alternative therapies, particularly herbal preparations.³ They did not, however, study the various herbal remedies individually. Another ED study of CAM use, among a small sample in a Dominican Republic ED, came to the same conclusion.¹⁶

Differences in attitudes and uses of CAMs may be important when targeting populations for questioning and education. Complementary and alternative medicine use has previously been linked with younger age, female gender, Catholic religion, and more education.¹⁷⁻¹⁹ These differences in demographic variables could help determine which subgroups of the population might be at risk for adverse events related to the use of CAM, such as drug-herb interactions.

The objectives of this study were to evaluate patients' understanding and use of CAMs, to describe the extent of CAM use among ED patients, and to determine whether there are race and gender differences in beliefs related to CAMs.

METHODS

Study Design. This study was a survey of patients presenting to an urban ED. Based on the survey design, the university institutional review board determined that the study was exempt from informed consent.

Study Setting and Population. All adult English-speaking walk-in patients presenting to our ED during a convenience sampling of shifts were included in the study. We excluded patients who were in extremis, those who were unable to participate due to psychiatric, medical, or traumatic illness, drug overdose, or alcohol intoxication, incarcerated patients, or those with a language barrier. Determination of ability to participate was based on disease acuity determined solely by judgment of the interviewer.

The study was conducted in a large metropolitan area with a total population of 500,000. The ED does a mix of primary and tertiary care for the

	Purported Use	Reported Problems in the Literature		
Black cohosh	To relieve symptoms of menopause.	Intense headaches, dizziness, slow pulse, nausea, and vom- iting. Possible risk for breast cancer or its recurrence. ^{44*}		
Comfrey	For wound healing, and as a diges- tive aid.	Serious liver damage. In large quantities, it causes hepatic veno-occlusive disease. In combination with pepsin, it in- creases the risk of hepatic disease up to 200 times. ^{55,56}		
DHEA†	Building muscles.	Mania. ^{57,58}		
Echinacea	Boosts the immune system.	Anaphylaxis. ¹⁰		
Ephedra (Ma-huang)	For colds and wheezing.	Hypersensitivity myocarditis and acute hepatitis. ^{11,48}		
Eucalyptus	For colds and flu.	Seizures. ⁴⁵		
Feverfew	Headaches.	None reported.		
Ginkgo biloba	Increases blood flow to the brain and improves cognitive decline.	Subarachnoid hemorrhage. ¹³		
Ginseng	For fatigue and stress.	A case of hypertension, reversed by withdrawal from ginseng, is also well documented. Gynecomastia due to estrogenic effect. Interaction to decrease blood warfarin levels. Diu- retic resistance. Ginseng abuse syndrome. ^{12,59-62}		
Hawthorne	Improves coronary circulation.	None reported.		
Jin Bu Huan	As a sedative.	Acute and chronic hepatitis. Caused life-threatening neuro- logic and cardiovascular manifestations in children. ^{49,63,64}		
Kava kava	For mild to moderate anxiety.	Kava dermopathy. Coma in combination with benzodiaze- pines. (<i>Piper methysticum</i>) ^{46,65}		
Melatonin	Sleep disorders.	Optic neuropathy ⁶⁶ and autoimmune hepatitis. ⁵¹		
Pennyroyal oil	An abortifacient.	It may deplete glutathione stores in a manner similar to acet- aminophen toxicity. It has also been described as causing renal failure, seizures, and abdominal pain. ^{45,67}		
St John's wort	Depression.	Serotonin syndrome in combination with other serotonergic medications and decreased levels of anti-retroviral medi- cations. ^{19,68} Also acute heart transplant rejection and mania. ^{14,15}		
Saw palmetto	For benign prostatic hypertrophy.	None reported.		
Valerian	For anxiety.	Has been associated with hepatotoxicity, cardiac complica- tions, and delirium. ^{47,69}		
Yohimbine	A vitalizing agent for men, particu- larly for the treatment of male impotence.	Hypertensive crisis, angina, and agranulocytosis. ^{70–72}		

TABLE 1. The Alternative Medicines that Were Evaluated in the Study

* For complete reference citations, see the reference list.

 $\dagger DHEA = dehydroepiandrosterone.$

	Alternate Medicine Survey							
AGE		Sex	Race	-				
Medic	ations I take							
Plage check the boyer below recording your use of the following								
riease check the boxes below regarding your use of the following.								
			used for?	of it	NOW	EVER		
	Black Cohosh							
	Comfrey							
	DHEA							
	Echinacea							
	Ephedra (Ma	Huang)						
	Eucalyptus							
	Feverfew							
	Ginkgo Biloba							
	Ginseng							
	Hawthorne							
	Jin Bu Huan							
	Kava Kava							
	Melatonin							
Pennyroyal oil								
St John's Wort		rt 🛛						
	Saw Palmetto							
	Valerian	·						
	Yohimbine							
I am us	ing other herbal r	emedies 1	not listed above?					
	If so, what is th	e name an	d purpose?		-			
I see a p	provider who use	s herbal re	medies. YES NO					
Please	circle true or fals	se for each	h of the following					
True or False All he		All hert	erbal medications are safe.					
True or False I tell n		I tell m	my doctor about herbal remedies that I take.					
True or False There		There is	is no need to tell my doctor about my herbal remedy use.					
True or False Herba		Herbal	I remedies do not interact with medications.					
True of	Frue or False I trust herbal remedies to be more effective than medicine.							

Figure 1. The survey instrument. DHEA = dehydroepiandrosterone.

city, and has an annual volume of 60,000 patients. The hospital is a large urban inner-city ED with a patient population that is 51% males and has a mean (\pm SD) age of 42 (\pm 20) years.

Study Protocol. The survey was developed and pilot-tested on a group of 26 physicians at our hospital. The CAMs chosen were based on the most commonly found CAMs at our local health food stores. Suggestions for additional CAMs were added based on the feedback received.

Surveys were presented to ED patients during the six-month period from July 1999 to December 1999. Four research assistants distributed the surveys. The researchers explained the survey and then gave it to the patient to complete on his or her own. The researchers did not intervene during the patient's completion of the form. Patients were assured that questionnaires were confidential. The following four sets of information were recorded: 1) patient demographics; 2) beliefs about CAMs and their safety, medication interactions, and conveying information to their physicians; 3) patient's knowledge of CAMs; and 4) patient's use of individual CAMs. The survey is presented in Figure 1. Table 1 lists the alternative medications that were evaluated in this survey, along with their suggested use and some of the problems that have been associated with them.

Data Analysis. Descriptive statistics were used to analyze survey results. Chi-squared was used to compare discrete variables with confidence intervals calculated for all significant differences. SPSS, version 9 (SPSS Inc., Chicago, IL), was used for all calculations.

RESULTS

A total of 350 (48% female) patients completed the survey. The mean (\pm SD) age was 37 (\pm 13) years, with 62 subjects aged 18–24 years, 98 subjects aged 25–35, 137 subjects aged 36–50, 42 subjects aged 51–64, and 11 subjects 65 or over. The racial breakdown was 4% Asian, 13% African American, 17% Hispanic, 60% white, and 6% other. Six per-

cent of the patients stated that they saw a provider of alternative medicines.

Eighty-seven percent (305/350) of the subjects had heard of at least one of the herbal remedies presented in the survey. Two-thirds (241/350) stated that they would tell their physicians about any herbal remedy use, while 8% (29/350) believed there was no need to tell their physicians. Only a small percentage of the population thought that herbal remedies were safe (16%, 56/350), that they did not interact with medications (6%, 21/350), or that they were more effective than medicines (17%. 61/350). Women were significantly more likely to believe that the herbal remedies do not interact with other medications (19% vs 2%; p < 0.05, 95% CI = 4% to 29%); there were no other gender or racial differences found. Those who were presently taking CAMs were significantly more likely than those not taking CAMs to believe that they do not interact with other medications (10/85, 12% vs 11/ 265, 4%, diff 8%, 95% CI = 0.4% to 15%) and were significantly more likely to trust herbal remedies to be more effective than medicine (24/85, 28% vs 37/265, 14%, diff 14%, 95% CI = 4% to 25%).

Table 2 summarizes the number of patients sampled who had heard of the product (column 1), could identify the product's use (column 2), had ever used the product (column 3), and were presently using the product (column 4). Eighty-seven percent of the subjects had heard of at least one CAM product, 53% could identify the correct suggested use of at least one product, 43% had used at least one of these products, and 24% were presently taking at least one of these products. The most commonly known CAMs were ginseng (75%), ginkgo biloba (55%), eucalyptus (58%), St. John's wort (57%), Echinacea (42%), and melatonin (44%). The most commonly used CAMs were ginseng (13%), St. John's wort (6%), ginkgo biloba (9%), Echinacea (7%), and eucalyptus (4%).

DISCUSSION

Our study suggests that CAM use among ED patients is high and that a large number of patients believe that CAMs are safe. Some patients believe that CAMs do not interact with other medication, and informing the EP of CAM use is not common. We found that the most commonly used CAMs are ginkgo biloba and ginseng, both of which have significant potential adverse effects. Ginkgo has been linked to subarachnoid hemorrhages,¹³ and ginseng has been shown to affect warfarin blood levels.¹²

A small percentage of our study population (6%) believe that CAMs do not interact with other medications. This belief could lead to unsuspected interactions with currently prescribed medications. For instance, St. John's wort causes a significant decrease in indinavir concentration,¹⁹ which could lead to the development of drug resistance and treatment failure.

Many patients do not volunteer information about their CAM use. In our study, 33% of the patients stated they would not tell their doctors they are using CAMs. This could lead to delay in diagnosis of medication problems or interactions. Since practically none of the charts that we reviewed during this study reflected the patient's use of CAMs, we suspect that the answer to this question referred to the patient's private physician and that even fewer believed they needed to tell an EP.

The use of CAMs has been on the rise in recent years. Studies have suggested CAM use in patients with such diverse problems as cancer,^{20–23} Parkinson's disease,²⁴ arthritis,^{25–28} asthma,^{25–29} HIV infection,^{30,31} and inflammatory bowel disease.^{30–33} Therefore, few patients are immune from the pressures placed on them by the lay press to try overthe-counter remedies for serious ailments.

Moreover, CAM use is becoming a part of medical practice. Use of CAMs has been investigated in the ED^{3,18,34–36} and the family practice clinic.^{37–39} There are also reports about CAM use by neurologists,⁴⁰ psychiatrists,⁴¹ pediatricians,⁴² and surgeons.⁴³ This would suggest that CAM use may be not only secondary to lay press, but also related to suggestions by medical practitioners.

Increasing CAM use has led to increased reports of toxic side effects. Neurologic symptoms and hepatitis are the two main categories of side effects with these substances. Reported neurologic symptoms include headache and dizziness with black cohosh; subarachnoid hemorrhages with ginkgo biloba; coma, delirium, or mania with kava kava, valerian, DHEA (dehydroepiandrosterone), or St. John's wort; and seizures with eucalyptus and pennyroyal oils.^{13,44-47} Hepatitis has been associated with Jin Bu Huan, Ephedra (ma-Huang), melatonin, and valerian.48-51 Emergency physicians caring for patients taking these medications must understand the effects of substances, their possible interactions with other medications, and their side effects. These are summarized in Table 1.

To the best of our knowledge, CAM use in the ED setting has been addressed in only two other published reports.³ Both also reported a large number of patients with experience with CAMs. A brief report of a survey of 139 patients in New York found that herbal use was third to chiropractic and massage therapy among the various alternative approaches. This report did not look at the individual CAMs that are available on the U.S. market. A smaller survey (n = 50) did a more comprehensive evaluation of available CAMs but looked

	Heard of the Product	Can Identify the Purpose	Use Ever	Use Now
Ginseng	264 (75%)	126 (36%)	83 (24%)	43 (13%)
Eucalyptus	204 (58%)	66 (20%)	50(14%)	15 (4%)
St. John's wort	200 (57%)	89 (25%)	51 (15%)	23 (6%)
Ginkgo biloba	194 (55%)	88 (25%)	44 (13%)	31 (9%)
Melatonin	155 (44%)	52~(15%)	39 (11%)	13 (4%)
Echinacea	148~(42%)	69 (20%)	45 (13%)	25 (7%)
DHEA	107 (31%)	21 (6%)	22 (6%)	9 (3%)
Feverfew	101 (31%)	13 (4%)	19 (6%)	4 (1%)
Saw palmetto	106 (31%)	14 (4%)	17 (5%)	4 (1%)
Valerian	97 (28%)	27 (8%)	27 (8%)	7 (2%)
Ephedra (Ma-huang)	95 (27%)	31 (9%)	23 (6%)	6 (2%)
Hawthorne	98 (27%)	8 (3%)	11 (3%)	8 (3%)
Kava kava	94 (27%)	26 (7%)	27 (8%)	10 (3%)
Yohimbine	86 (25%)	10 (3%)	11 (3%)	3 (1%)
Pennyroyal oil	88 (25%)	3 (1%)	9 (3%)	3 (1%)
Comfrey	86 (25%)	20 (6%)	18 (5%)	5 (1%)
Black cohosh	65 (19%)	9 (3%)	12 (4%)	5 (1%)
Jin Bu Huan	64 (19%)	0 (0%)	7 (2%)	2 (1%)
Any of the above	305 (87%)	185 (53%)	151 (43%)	85 (24%)

TABLE 2. Knowledge of Herbal Remedies (n = 350)

at those that were used in the Dominican Republic.¹⁸ None of the CAMs addressed in this previous study are among the primary CAMs available in the United States. Our study expands on the findings of the previous work, and provides additional information on use of CAMs in a U.S. ED.

Teaching EPs about CAMs has lagged behind the widespread use of these substances. There have been suggestions for incorporating the information in both medical school⁵² and family practice residencies.^{53,54} No literature addresses whether EM practitioners should receive training in CAM use, toxicity, and drug interactions.

LIMITATIONS AND FUTURE QUESTIONS

Our study has limitations. First, we were able to enter only awake, alert English-speaking patients, suggesting we may have missed some of the sicker patients who were unable to cooperate. This was a convenience sampling and thus had limitations based on the times chosen to obtain survey information. We attempted to limit this by having surveyors carefully include all subjects during their shifts.

We did not track demographics on patients refusing to participate in the study. Instead, we used the overall ED population demographics to establish that we had a representative sample.

We collected data only at one institution, with one demographic population, and we used a convenience sampling of only English-speaking patients without serious medical illnesses. These must be taken into account when considering the external validity of our data to other populations.

Future studies would include data gathering in other populations and environments to determine the generalizability of our results. Additionally, studies should be directed toward noting toxicities and possible drug interactions of alternate medications in ED populations.

CONCLUSIONS

The use and public acceptance of CAM in our study population were high. Because of potential side effects and drug interactions, patients should be routinely questioned about CAM use. Emergency medicine providers should be aware of CAMs and education about CAMs should be included in medical training.

References

1. Eisenberg DM, Davis RB, Ettner SL, et al. Trends in alternative medicine use in the United States, 1990–1997: results of a follow-up national survey. JAMA. 1998; 280:1569–75.

2. Schnare SM. Complementary and alternative medicine: a primer. Clin Obstet Gynecol. 2000; 43(1):157-61.

3. Gulla J, Singer AJ. Use of alternative therapies among emergency department patients. 2000; 35:226-8.

4. Philipp M, Kohnen R, Hiller KO. Hypericum extract versus imipramine or placebo in patients with moderate depression: randomised multicentre study of treatment for eight weeks. BMJ. 1999; 319:1534–8.

5. Murphy JJ, Heptinstall S, Mitchell JR. Randomised doubleblind placebo-controlled trial of feverfew in migraine prevention. Lancet. 1988; 2:189–92.

6. Marks LS, Partin AW, Epstein JI, et al. Effects of a saw palmetto herbal blend in men with symptomatic benign prostatic hyperplasia. J Urol. 2000; 163:1451-6.

7. Grimm W, Muller HH. A randomized controlled trial of the effect of fluid extract of *Echinacea purpurea* on the incidence and severity of colds and respiratory infections. Am J Med. 1999; 106:138–43.

8. Barrett B, Kiefer D, Rabago D. Assessing the risks and benefits of herbal medicine: an overview of scientific evidence. Altern Ther Health Med. 1999; 5(4):40–9.

9. Catania PN. Problems with herbal remedies in anticoagulated home care patients. Home Care Provid. 1998; 3:253–5.

10. Myers SP, Wohlmuth H. Echinacea-associated anaphy-

laxis. Med J Aust. 1998; 168:583-4.

11. Zaacks SM, Klein L, Tan CD, Rodriguez ER, Leikin JB. Hypersensitivity myocarditis associated with ephedra use. J Toxicol Clin Toxicol. 1999; 37:485–9.

12. Janetzky K, Morreale AP. Probable interaction between warfarin and ginseng. Am J Health Syst Pharm. 1997; 54:692–3.

13. Vale S. Subarachnoid haemorrhage associated with ginkgo biloba [letter]. Lancet. 1998; 352:36.

14. Ruschitzka F, Meier PJ, Turina M, Luscher TF, Noll G. Acute heart transplant rejection due to Saint John's wort. Lancet. 2000; 355:548–9.

15. Nierenberg AA, Burt T, Matthews J, Weiss AP. Mania associated with St. John's wort. Biol Psychiatry. 1999; 46:1707–8.

16. Allen R, Cushman LF, Morris S, et al. Use of complementary and alternative medicine among Dominican emergency department patients. Am J Emerg Med. 2000; 18(1):51–4.

17. Gotay CC, Hara W, Issell BF, Maskarinec G. Use of complementary and alternative medicine in Hawaii cancer patients [corrected and republished article originally printed in Hawaii Med J. 1999; 58(3):49–51, 54–5]. Hawaii Med J. 1999; 58(4):94–8.

18. Cushman LF, Wade C, Factor-Litvak P, Kronenberg F, Firester L. Use of complementary and alternative medicine among African-American and Hispanic women in New York City: a pilot study. J Am Med Womens Assoc. 1999; 54(4):193–5.

19. Piscitelli SC, Burstein AH, Chaitt D, Alfaro RM, Falloon J. Indinavir concentrations and St John's wort. Lancet. 2000; 355:547–8.

20. Liu JM, Chu HC, Chin YH, et al. Cross sectional study of use of alternative medicines in Chinese cancer patients. Jpn J Clin Oncol. 1997; 27(1):37–41.

21. Ernst E, Cassileth BR. The prevalence of complementary/ alternative medicine in cancer: a systematic review. Cancer. 1998; 83:777–82.

22. Jacobson JS, Workman SB, Kronenberg F. Research on complementary/alternative medicine for patients with breast cancer: a review of the biomedical literature. J Clin Oncol. 2000; 18:668–83.

23. Metz JM. "Alternative medicine" and the cancer patient: an overview. Med Pediatr Oncol. 2000; 34(1):20-6.

24. HP-200 in Parkinson's Disease Study Group. An alternative medicine treatment for Parkinson's disease: results of a multicenter clinical trial. J Altern Complement Med. 1995; 1: 249–55.

25. da Camara CC, Dowless GV. Glucosamine sulfate for osteoarthritis. Ann Pharmacother. 1998; 32:580–7.

26. Rao JK, Mihaliak K, Kroenke K, Bradley J, Tierney WM, Weinberger M. Use of complementary therapies for arthritis among patients of rheumatologists. Ann Intern Med. 1999; 131: 409–16.

27. Gaby AR. Alternative treatments for rheumatoid arthritis. Altern Med Rev. 1999; 4:392–402.

28. Resch KL, Hill S, Ernst E. Use of complementary therapies by individuals with 'arthritis.' Clin Rheumatol. 1997; 16: 391–5.

29. Blanc PD, Kuschner WG, Katz PP, Smith S, Yelin EH. Use of herbal products, coffee or black tea, and over-the-counter medications as self-treatments among adults with asthma. J Allergy Clin Immunol. 1997; 100(6 pt 1):789–91.

30. Fairfield KM, Eisenberg DM, Davis RB, Libman H, Phillips RS. Patterns of use, expenditures, and perceived efficacy of complementary and alternative therapies in HIV-infected patients [see comments]. Arch Intern Med. 1998; 158:2257–64.

31. Singh N, Squier C, Sivek C, Nguyen MH, Wagener M, Yu VL. Determinants of nontraditional therapy use in patients with HIV infection. A prospective study. Arch Intern Med. 1996; 156:197–201.

32. Hilsden RJ, Meddings JB, Verhoef MJ. Complementary and alternative medicine use by patients with inflammatory bowel disease: an Internet survey. Can J Gastroenterol. 1999; 13:327–32.

33. Hilsden RJ, Verhoef MJ. Complementary and alternative medicine: evaluating its effectiveness in inflammatory bowel disease. Inflamm Bowel Dis. 1998; 4:318–23.

34. Milton D. Using alternative and complementary therapies in the emergency setting. J Emerg Nurs. 1998; 24:500–8.

35. Rankin-Box DF. Is there a place for complementary therapies in the accident and emergency department? Accid Emerg Nurs. 1996; 4:160-4.

36. Pearl WS, Leo P, Tsang WO. Use of Chinese therapies among Chinese patients seeking emergency department care. Ann Emerg Med. 1995; 26:735–8.

37. Zink T, Chaffin J. Herbal 'health' products: what family physicians need to know. Am Fam Physician. 1998; 58:1133–40.

38. Onopa J. Complementary and alternative medicine (CAM): a review for the primary care physician. Hawaii Med J. 1999; 58(2):9–19.

39. White AR, Resch KL, Ernst E. Complementary medicine: use and attitudes among GPs. Fam Pract. 1997; 14:302–6.

40. Weiss HD. Complementary and complementary neurology. Arch Neurol. 2000; 57(1):140.

41. Wong AH, Smith M, Boon HS. Herbal remedies in psychiatric practice. Arch Gen Psychiatry. 1998; 55:1033–44.

42. Sikand A, Laken M. Pediatricians' experience with and attitudes toward complementary/alternative medicine. Arch Pediatr Adolesc Med. 1998; 152:1059–64.

43. Murphy JM. Preoperative considerations with herbal medicines. AORN J. 1999; 69(1):173–5, 177–8, 180–3.

44. Wade C, Kronenberg F, Kelly A, Murphy PA. Hormonemodulating herbs: implications for women's health. J Am Med Womens Assoc. 1999; 54(4):181–3.

45. Burkhard PR, Burkhardt K, Haenggeli CA, Landis T. Plant-induced seizures: reappearance of an old problem. J Neurol. 1999; 246:667–70.

46. Almeida JC, Grimsley EW. Coma from the health food store: interaction between kava and alprazolam. Ann Intern Med. 1996; 125:940–1.

47. Garges HP, Varia I, Doraiswamy PM. Cardiac complications and delirium associated with valerian root withdrawal. JAMA. 1998; 280:1566–7.

48. Nadir A, Agrawal S, King PD, Marshall JB. Acute hepatitis associated with the use of a Chinese herbal product, ma-huang. Am J Gastroenterol. 1996; 91:1436–8.

49. Picciotto A, Campo N, Brizzolara R, et al. Chronic hepatitis induced by Jin Bu Huan. J Hepatol. 1998; 28(1):165–7.

50. Chan TY, Tang CH, Critchley JA. Poisoning due to an overthe-counter hypnotic, Sleep-Qik (hyoscine, cyproheptadine, valerian). Postgrad Med J. 1995; 71:227–8.

51. Hong YG, Riegler JL. Is melatonin associated with the development of autoimmune hepatitis? J Clin Gastroenterol. 1997; 25(1):376-8.

52. Bhattacharya B. M.D. programs in the United States with complementary and alternative medicine education opportunities: an ongoing listing. J Altern Complement Med. 2000; 6(1):77–90.

53. Carlston M, Stuart MR, Jonas W. Alternative medicine instruction in medical schools and family practice residency programs. Fam Med. 1997; 29:559–62.

54. Kligler B, Gordon A, Stuart M, Sierpina V. Suggested curriculum guidelines on complementary and alternative medicine: recommendations of the Society of Teachers of Family Medicine Group on Alternative Medicine. Fam Med. 2000; 32(1):30-3.

55. Ridker PN, McDermont WV. Hepatotoxicity due to comfrey herb tea [letter]. Am J Med. 1989; 87(6):701.

56. Huxtable RJ, Luthy J, Zweifel U. Toxicity of comfrey-pepsin preparations [letter]. N Engl J Med. 1986; 315:1095.

57. Kline MD, Jaggers ED. Mania onset while using dehydroepiandrosterone [letter]. Am J Psychiatry. 1999; 156:971.

58. Markowitz JS, Carson WH, Jackson CW. Possible dehydroepiandrosterone-induced mania. Biol Psychiatry. 1999; 45: 241–2.

59. Zhu M, Chan KW, Ng LS, Chang Q, Chang S, Li RC. Possible influences of ginseng on the pharmacokinetics and pharmacodynamics of warfarin in rats. J Pharm Pharmacol. 1999; 51:175–80.

60. Palop V, Catalan C, Rubio E, Martinez-Mir I. [Gynecomastia in a male and ginseng (letter)]. Med Clin (Barc). 1999; 112:758.

61. Becker BN, Greene J, Evanson J, Chidsey G, Stone WJ.

47

Ginseng-induced diuretic resistance. JAMA. 1996; 276:606–7. 62. Siegel RK. Ginseng abuse syndrome. Problems with the panacea. JAMA. 1979; 241:1614–5.

63. Horowitz RS, Feldhaus K, Dart RC, Stermitz FR, Beck JJ. The clinical spectrum of Jin Bu Huan toxicity. Arch Intern Med. 1996; 156:899–903.

64. Kaptchuk TJ. Acute hepatitis associated with Jin Bu Huan [letter]. Ann Intern Med. 1995; 122:636.

65. Norton SA, Ruze P. Kava dermopathy. J Am Acad Dermatol. 1994; 31(1):89-97.

66. Lehman NL, Johnson LN. Toxic optic neuropathy after concomitant use of melatonin, zoloft, and a high-protein diet. J Neuroophthalmol. 1999; 19:232–4.

67. Bakerink JA, Gospe SM Jr, Dimand RJ, Eldridge MW. Multiple organ failure after ingestion of pennyroyal oil from herbal tea in two infants. Pediatrics. 1996; 98:944-7.

68. Lantz MS, Buchalter E, Giambanco V. St. John's wort and antidepressant drug interactions in the elderly. J Geriatr Psychiatry Neurol. 1999; 12(1):7–10.

69. Chan TY, Tang CH, Critchley JA. Poisoning due to an overthe-counter hypnotic, Sleep-Qik (hyoscine, cyproheptadine, valerian). Postgrad Med J. 1995; 71:227–8.

70. Ruck B, Shih RD, Marcus SM. Hypertensive crisis from herbal treatment of impotence. Am J Emerg Med. 1999; 17: 317-8.

71. Epelde Gonzalo F. [Yohimbine-induced angina pectoris (letter)]. An Med Interna. 1998; 15:676.

72. Siddiqui MA, More-O'Ferrall D, Hammod RS, Baime RV, Staddon AP. Agranulocytosis associated with yohimbine use. Arch Intern Med. 1996; 156:1235–6, 1238.



Call for Photographs

Deadline: February 15, 2001

Original photographs of the practice of emergency medicine are invited for presentation at the 2001 SAEM Annual Meeting in Atlanta on May 6-9. The theme is "Clinical Pearls and Visual Diagnosis." Original photographs of patients, pathology specimens, gram stains, EKG's, and radiographic studies or other visual data may be submitted. The deadline for receipt is February 15, 2001. Submissions should depict findings that are pathognomo-

Submissions should depict findings that are pathognomonic for a particular diagnosis relevant to the practice of emergency medicine or findings of unusual interest that have educational value. Accepted submissions will be used for the "Clinical Pearls" photography session, and may also be used in the Medical Student-Resident Visual Diagnosis contest.

No more than three different photos should be submitted for any one case. Submit one glossy photo $(5^{\circ} \times 7^{\circ}, 8^{\circ} \times 10^{\circ}, 11^{\circ} \times 14^{\circ} \text{ or } 16^{\circ} \times 20^{\circ})$ and a digital copy in either JPEG or TIFF format on a disk or by email attachment (resolution at least 640 x 480). Radiographs should be submitted as glossy photos, not as x-rays. For EKG's, the original and one photocopy (or digital image) is preferred. The back of each photo should contain the contributor's name, address, hospital or program, and an arrow indicating the top. Submissions should be shipped in an envelope with cardboard but should not be mounted.

All photo submissions must be accompanied by a case history written as an "unknown" in the following format:

- 1. Chief complaint
- 2. History of present illness
- 3. Pertinent physical exam

- 4. Pertinent laboratory data
- One or two questions asking the viewer to identify the diagnosis or pertinent finding
- 6. Answer(s) and brief discussion of the case, including an explanation of the findings in the photo
- 7. One to three bulleted take home points or "pearls"

The case history must be 250 words or less and fit on a single page with at least one blank line between sections and submitted as a hard copy and as a file on a disk or as an email attachment.

Submissions will be judged based on their educational merit, relevance to emergency medicine, quality of the photograph and the case description. Submissions will also be reviewed to assure appropriateness for public display. SAEM will mount and display accepted photos at the 2001 Annual Meeting. Contributors will be acknowledged and photos will be returned after the meeting.

Photographs must not appear in a refereed journal prior to the Annual Meeting. Appropriate masking of recognizable patients or written consent is the responsibility of the contributor. Documentation of written consent must accompany submissions and include a release of responsibility. All submissions will be considered for publication in *Academic Emergency Medicine*. SAEM will retain the rights to use submitted photographs for use in future educational projects, with full credit given for the contribution.

Send submissions to SAEM at 901 North Washington Avenue, Lansing, MI 48906 or saem@saem.org