ALTERNATIVE THERAPIES IN WOMEN'S HEALTH

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INSIDE

Garlic and Cardiovascular Disease

By Dónal P. O'Mathúna, PhD

CARDIOVASCULAR DISEASE IS A COMPLEX GROUP OF HEART-RELATED conditions that is by far the leading cause of death in women.[1] About 500,000 women die each year in the United States from cardiovascular disease. That is almost one death per minute and is more than the next seven leading causes of death combined. One in five U.S. women have some form of cardiovascular disease, and almost two-thirds of those who die suddenly from coronary heart disease had no previous symptoms. The risk of heart disease is two to three times higher after menopause than among women of the same age before menopause, and the risks among African American and Mexican American women are higher than among white women. Anything that can reduce the incidence of or damage from cardiovascular disease will have a significant impact on women's health.

Cardiovascular disease can arise from interactions between a number of factors, including high serum cholesterol and triglyceride levels, elevated blood pressure, increased platelet aggregation, and reduced fibrinolysis (the process by which blood clots are broken down). All of these conditions are impacted by lifestyle factors such as smoking, stress, and obesity. Related to the latter is the recognition that dietary factors play an important role in the development of cardiovascular disease.

History

For centuries, garlic has been recommended for cardiovascular health. Many cultures have long viewed garlic as an important dietary supplement with beneficial health effects. Ayurvedic medicine in ancient India refers to the beneficial effects of garlic for blood flow and strengthening the heart.[2] The Egyptian *Codex Ebers* (1500 BC) recommended garlic for treating heart disease and also for tumors, worms, bites, and many other conditions. The ancient Greek physician Hippocrates (400 BC) and the Roman authority Pliny the Elder (77 AD) similarly recommended garlic for the cardiovascular system. During the ancient Olympics, athletes were encouraged to consume copious quantities of garlic to increase their stamina.[3]

Clinical work as early as 1926 found garlic to have beneficial

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effects on cardiovascular disease. These effects had to be rediscovered in the 1960s and 1970s when a number of studies noted reductions in serum cholesterol and triglycerides levels.[2] However, all these early studies were conducted with raw garlic administered at very high doses: between seven and 28 cloves per day. This amount of raw garlic has serious social ramifications, regardless of any health benefits.

Mechanism of Action

A number of mechanisms are believed to be involved in garlic's cardiovascular effects reflecting the biological activity of several of the sulfur compounds. Some of these inhibit liver enzymes involved in making cholesterol, including HMG-CoA reductase (the enzyme inhibited by the statin drugs). Garlic also contains antioxidants that reduce the oxidation of LDL cholesterol, thus giving rise to beneficial effects that can counteract the development of atherosclerosis. Other constituents in garlic cause smooth muscle relaxation that can lead to reduced hypertension. Some garlic preparations have antiplatelet properties and other effects that counteract blood-clotting mechanisms.

Formulations

Because of the odor problem, much work has been conducted to find more palatable and less odorous formulations of garlic. However, this generates further problems in attempting to review the effectiveness of garlic. Garlic's cardiovascular effects are believed to be caused by sulfur-containing compounds.[4] An intact clove of garlic contains almost all its sulfur in one storage compound called alliin (a name coming from garlic's botanical name, *Allium sativum*). Raw garlic also contains an enzyme called alliinase, which rapidly converts alliin to allicin. The distinctive aroma and taste of garlic is due to allicin, but this is very volatile and unstable, breaking down either in a few hours at room temperature or after 20 minutes of cooking. Raw garlic can be consumed as whole cloves, but usually it is crushed or cut into slivers, and more commonly, it is cooked. However, depending on whether it is cooked in water, oil, or alcohol, different sets of compounds are formed.

As allicin decomposes, dozens of other more stable sulphur compounds are formed. Many of these are biologically active. To complicate matters even further, garlic supplements are prepared in different ways, resulting in different ingredients. The two most common powered formulations are dried garlic powder and aged garlic extract (AGE). During the aging process, the volatile components are lost, thus leading to AGE being called odorless garlic.[4] Garlic oil also is available, with three different methods commonly used to make these preparations, again each containing different mixtures of sulfur compounds. The most commonly used dosage form in clinical trials is a standardized garlic powder extract called Kwai (200-400 mg tid).

This raises an important issue for clinical studies: Different preparations contain different compounds in different ratios, which may impact the effects the garlic preparations have on people.

Clinical Studies

Although garlic's biological activities have been demonstrated in laboratory and animal tests, controversy continues over their clinical significance.[5] Results of trials have been contradictory. Another problem has been that while earlier studies often found beneficial effects, more recent trials have not. Often, the more recent trials were larger, longer, and of higher methodological quality.

Cholesterol and lipid levels. Two meta-analyses published in 1993 and 1996 generated much interest in garlic because they reported 9% and 12% reductions in total cholesterol levels, respectively.[4] Two additional

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randomized, controlled trials (RCTs) at around the same time reported reduced cholesterol levels (though only 6%), although with no changes in triglyceride levels. Since then, six more RCTs have found no significant reductions in cholesterol or triglyceride levels compared to placebo. A 2002 review noted that in spite of earlier beneficial results, "in the last five years, no randomized, double-blind, placebo-controlled study could be found in which the results indicated a clear beneficial effect of a garlic preparation alone on blood lipids."[4] Additionally, although benefits were found after one and three months, no trials lasting six months or longer showed significant reductions in cholesterol levels.[6] There seems to be no debate over the finding that garlic does not impact HDL-cholesterol levels.

Antioxidant effects. Although many of garlic's components have demonstrated an antioxidant effect, very few studies have been conducted on the clinical significance of this effect. The results of studies measuring serum antioxidant capacity for those taking garlic have been variable. The particular garlic preparation used here is significant. AGE products are made by soaking garlic slivers in alcohol for 20 months, which removes almost all allicin, but leaves other compounds with greater antioxidant capacity.[3]

Blood-clotting effects. In contrast to the unclear effects above, almost all trials examining garlic's impact on fibrinolysis have had positive effects. Fibrinolysis leads to the breakdown of blood clots and its impairment increases the risk of cardiovascular disease. Fibrinolytic activity, acute and chronic, has been increased with all types of garlic preparations in most of the studies examining this factor.[3] Another aspect of blood clotting, platelet aggregation, also is effected by garlic. Again, most studies here have found beneficial effects. However, a review published in 2000 by the Agency for Healthcare Research and Quality concluded that these results must be taken as preliminary.[6] While positive, all the studies found for this review were very small and of limited duration, and some had serious methodological flaws.

Antihypertensive effects. Several studies have examined the role of garlic preparations in lowering blood pressure. A 2002 review located almost 30 studies, though most were small, of short duration, and not conducted to the highest methodological standards.[4] Of these, almost three-quarters found the garlic preparations of no greater benefit that placebo.

Adverse Effects

Garlic is well-known for its adverse breath and body odor after oral ingestion. Eating raw garlic and high doses of supplements also can cause mouth and gastrointestinal irritation and burning, heartburn, nausea, vomiting, and diarrhea.[7] Some people also are susceptible to allergic reactions to garlic. The effects of garlic on platelet aggregation and fibrinolysis may increase the risk of bleeding, especially when combined with warfarin or other anticoagulants. Case reports of postoperative bleeding and spontaneous epidural hematoma point to the importance of informing patients about this increased risk.[8] There also is some evidence that allicin may stimulate the activity of a cytochrome P450 enzyme involved in the metabolism of many drugs.[7] Some of the more common drugs whose effectiveness thus may be reduced include oral contraceptives, calcium channel blockers, HIV protease inhibitors, and cyclosporine. Formulations containing alliin or alliinase are not believed to cause this type of drug interaction.

Conclusion

Overall, garlic preparations appear to be of some limited value as a complementary strategy to reducing some risk factors associated with cardiovascular disease. The evidence as this stage points to limited beneficial effects for garlic as an anticoagulant and in lowering cholesterol levels slightly for short periods of time. For example, when taken for up to six months, garlic lowers cholesterol levels 4-12%, which must be contrasted with statin drugs that typically reduce cholesterol levels by 17-55%.[7] Although garlic also has been recommended as having other cardiovascular benefits, larger, more rigorous studies must be conducted before recommending garlic as a routine therapy or instead of conventional therapy.

Given the many associations between garlic and cardiovascular health, and the preliminary research results now available, use of garlic in the diet can be encouraged as part of an overall heart-healthy diet. Whether garlic supplements will provide significant cardiovascular benefits remains to be seen. ❖

References

1. American Heart Association. General heart disease and stroke facts about women. Available at: www.americanheart.org/downloadable/heartsmart/1082152512419GRFWWomensFacts.doc. Accessed Jan. 5, 2005.
2. Rahman K. Historical perspective on garlic and cardiovascular disease. *J Nutr* 2001;131:977S-979S.
3. Banerjee SK, Maulik SK. Effect of garlic on cardiovascular disorders: A review. *Nutr J* 2002;1:4-18.
4. Brace LD. Cardiovascular benefits of garlic (*Allium sativum* L). *J Cardiovasc Nurs* 2002;16:33-49.
5. Jakubowski H. On the health benefits of *Allium* sp. *Nutrition* 2003;19:167-168.

6. Mulrow C, et al. Garlic: Effects on cardiovascular risks and disease, protective effects against cancer, and clinical adverse effects. Rockville, MD: Agency for Healthcare Research and Quality; 2000. AHRQ publication 01-E023. Available at: www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=hstat1.chapter.28361. Accessed Nov. 20, 2004.
7. Garlic. *Natural Medicines Comprehensive Database.* Available at: www.naturaldatabase.com. Accessed Nov. 19, 2004.
8. Awang D, Fugh-Berman A. Herbal interactions with cardiovascular drugs. *J Cardiovasc Nurs* 2002;16:64-70.

A Treatment to Take to Heart

Source: Mursu J, et al. Dark chocolate consumption increases HDL cholesterol concentration and chocolate fatty acids may inhibit lipid peroxidation in healthy humans. *Free Radical Biol Med* 2004;37:1351-1359.

Abstract: Cocoa powder is rich in polyphenols and may contribute to the reduction of lipid peroxidation. The aim of this trial was to study the effects of long-term ingestion of chocolate, with differing amounts of polyphenols, on serum lipids and lipid peroxidation ex vivo and in vivo. The authors conducted a three-week clinical supplementation trial of 45 non-smoking, healthy volunteers. Participants consumed 75 g/d of either white chocolate (WC), dark chocolate (DC), or dark chocolate enriched with cocoa polyphenols (HPC). An increase in serum HDL cholesterol was observed in the DC and HPC groups (11.4% and 13.7%, respectively), whereas there was a small decrease (-2.9%, $P < 0.001$) in the WC group. The concentration of serum LDL diene conjugates, a marker of lipid peroxidation in vivo, decreased 11.9% in all three study groups. No changes were seen in the total antioxidant capacity of plasma, in the oxidation susceptibility of serum lipids or VLDL + LDL, or in the concentration of plasma F2-isoprostanes or hydroxy fatty acids. Cocoa polyphenols may increase the concentration of HDL cholesterol, whereas chocolate fatty acids may modify the fatty acid composition of LDL and make it more resistant to oxidative damage.

■ COMMENTS BY MARY L. HARDY, MD

I WAS ESPECIALLY INTERESTED IN DISCOVERING THAT chocolate (a key food group from Halloween to Easter—all those chocolate-giving holidays!) could be a healthy food choice. I put my heart and soul into this and it looks like my heartfelt wish may have come true—sort of. Luckily, cocoa does have a long history of use as a healthy beverage. A chocolate liquid made from the roasted cacao "beans" was a health-promoting drink of the Mayans more than 500 years before the Spanish came to the new world.[1] However, we wouldn't recognize their hot chocolate today if it were sold at Starbucks. The traditional drink, still brewed in Central America today, was unsweetened and often included hot spices like chili or black pepper, resulting in a spicy, bitter complex drink.[2] This life-giving beverage was precious in Mayan culture. It was offered as a sacrifice to the gods and its consumption was limited to priests and royalty. The sacred nature of the plant is reflected in its Latin name, *Theobroma cacao*, literally food of the gods.[1,2] Modern phytomedical investigations have identified some significant health effects of chocolate, largely related to its flavonoid content.

Theobroma cacao, a tropical tree, yields a melon-sized fruit that contains in its pulp, the "cocoa bean," which is really a seed. Although this tree originally was native to tropical Mesoamerica, 90% of commercial cocoa now comes from West Africa. After roasting and/or fermentation, the seeds are pressed to extract the cocoa butter, leaving behind the cocoa cake. Once this cake has been dried and ground, it is called cocoa powder. Variations in taste, color, texture, and phytochemical structure result from differences in the varieties of plants, climate conditions, and processing. Cocoa powder contains approximately 20% fat, up to 3% methylxanthine alkaloids (mainly theobromine), and is rich in flavonoids. This powder is blended with sugar, cocoa butter, and other ingredients to make chocolate products.[3]

Chocolate is a rich source of dietary flavonoids, accounting for 20% of the total flavonoids present in the Dutch diet.[4] Flavonoids are potent antioxidants and are thought to protect against heart disease and cancer. It recently has been determined that chocolate is a good source of epicatechin, the main flavonoid found in green tea, a beverage with well-known health benefits. Chocolate also contains additional phenolic compounds such as procyanidins.[3] The polyphenol content of chocolate is highest with dark chocolate and decreases with milk chocolate. In one analysis, dark chocolate had a higher catechin content than milk chocolate or black tea (54 mg/100 g vs. 15.9 mg/100 g vs. 13.9 mg/100 g, respectively).[4] The total phenolic content of dark chocolate was twice that of red wine and triple that of green tea and black tea.[5] The values for antioxidant capacity were similar as well. So, dark chocolate can be a good dietary source of healthful flavonoids with a strong antioxidant capacity.

Mursu et al conducted a trial to determine the ability of cocoa powder to affect components of the lipid profile in humans.[6] They fed non-smoking, healthy volunteers 75 g/d of either white chocolate (WC), dark chocolate (DC), or dark chocolate enriched with added cocoa polyphenols (HPC). The energy density of the test chocolates was roughly 560 kcal but the total amount of

catechins varied from a total of 0 mg in the 75 g sample for WC, to 366 mg for the DC sample, to a maximum of 557 mg in the HPC sample. The 45 subjects enrolled in the study were allowed to choose the type of chocolate they wished to eat. After three weeks eating the chocolate of their choice, the lipid levels and LDL oxidation were measured. HDL levels were unchanged in the WC group but rose about 10% in the DC group and 13% in the HPC group ($P < 0.001$). No changes in total cholesterol or LDL were observed. The dark chocolates also decreased lipid peroxidation by 12%, measured by the formation of a byproduct of oxidation found in the blood. Unfortunately (for me), a small but statistically significant weight gain was recorded in the DC group.

Although chocolate has been shown to be an important source of dietary flavonoids, concern must still be taken to account for the energy density of this food. Health-conscious consumers interested in maximizing their polyphenol intake would be best advised to eat dark, not milk, chocolate in doses that do not lead to calorie excess and consequent weight gain. To address this energy concern while maintaining a health benefit, we already are starting to see the development of isolated chocolate polyphenols as dietary supplements in capsule form, much like the green tea capsules already available. Some manufacturers have started to incorporate chocolate catechins with baby aspirin to capitalize on the heart-healthy effects.

I think I can be justified in looking at chocolate as a relatively healthy vice—in moderation, at least! That may be good enough to get me through chocolate season. ❖

References

1. Dillinger TL, et al. Food of the gods: Cure for humanity? A cultural history of the medicinal and ritual use of chocolate. *J Nutr* 2000;130(8S Suppl):2057S-2072S.
2. Lee R, Balick MJ. Chocolate: Healing 'food of the gods'? *Altern Ther Health Med* 2001;7:120-122.
3. DerMarderosian A, Beutler J, eds. *The Review of Natural Products.* St. Louis, MO: Facts and Comparisons; 2002.
4. Arts IC, et al. Chocolate as a source of tea flavonoids. *Lancet* 1999;354:488.
5. Lee KW, et al. Cocoa has more phenolic phytochemicals and a higher antioxidant capacity than teas and red wine. *J Agric Food Chem* 2003;51:7292-7295.
6. Mursu J, et al. Dark chocolate consumption increases HDL cholesterol concentration and chocolate fatty acids may inhibit lipid peroxidation in healthy humans. *Free Rad Biol Med* 2004;37:1351-1359.

Effect of DHEA on Abdominal Fat and Insulin Action in the Elderly

Source: Villareal DT, Holloszy JO. Effect of DHEA on abdominal fat and insulin action in elderly women and men: A randomized controlled trial. *JAMA* 2004;292:2243-2248.

Abstract: Abdominal fat increases with advancing age and has been linked to increased risk for diabetes and cardiovascular disease. While insufficient exercise and overeating certainly contribute to age-related acquisition of abdominal fat, hormonal and metabolic factors also have been implicated. Even thin individuals who exercise regularly display increased abdominal fat as they age. This study aimed to determine whether the age-related decline in the adrenal hormone dehydroepiandrosteroine (DHEA) was one of the hormonal factors linked to increased abdominal adiposity and insulin resistance.

Elderly men (n = 28) and women (n = 28) between the ages of 65-78 years were enrolled and randomly assigned to receive either placebo or 50 mg of DHEA orally each day for six months. The mean body mass index of the men was 28 kg/m^2 and that of the women was 27 kg/m^2. Those using other hormones and having serious illnesses were excluded. Primary outcome variables were visceral and subcutaneous abdominal fat measured by magnetic resonance imaging and glucose and insulin responses to an oral glucose tolerance test. Ancillary outcome variables included food intake and levels of insulin-like growth factor 1 (IGF-1), prostate specific antigen (PSA), estradiol, and testosterone.

DHEA administration raised participants' serum DHEA-sulfate (DHEAS) into the young physiological range. In women, DHEA use increased testosterone and estradiol, but only estradiol was raised in men. Both groups showed increased IGF-1. Sex hormone-binding globulin did not change. Those who used DHEA lost about two pounds during the six months. Weight loss was similar in men and women. Recorded food intake stayed the same. Both men and women lost abdominal visceral fat, but women lost slightly more than men, 10% vs. 7%. Abdominal fat declined 6% in both men and women. Insulin sensitivity improved dramatically and there was an inverse association between changes in insulin sensitivity and visceral fat. There were no adverse events and PSA did not change appreciably in men. Villareal and associates point out that the long-term safety of DHEA use remains unknown. However, based on the outcome variables followed in the study, short-term use appears to positively effect metabolism.

■ COMMENTS BY SARAH L. BERGA, MD

MANY PHYSIOLOGICAL FUNCTIONS CHANGE WITH AGE. Adrenal function shows a dramatic ontological pattern that includes both adrenarche during childhood and adrenopause during the senescent years. There can be no

doubt that adrenarche causes phenotypic changes. These include growth of axillary and other body hair, increased sebaceous gland secretion, altered body odor, and thickening and pigmentation of the skin. The phenotypic features of adrenopause are less well chronicled, possibly because adrenopause occurs over decades (starting at age 25 years) whereas adrenarche happens over a few years (typically from ages 7-9 years). The results of this study suggest that the increased abdominal adiposity so typical of advancing age is at least partly caused by a decline in the adrenal secretion of the androgenic hormone, dehydroepiandrosteroine (DHEA). The exact mechanisms by which DHEA exerts its impact is still a subject of conjecture, although Villareal et al suggest that DHEA activates the peroxisome proliferator-activated receptor alpha (PPAR), a transcription factor which regulates fatty acid transport proteins that facilitate fatty acid entry into cells and enzymes involved in the oxidation of fatty acids. In other words, DHEA modifies fundamental metabolic pathways in a way that favors fat oxidation and reduces fat deposition.

When these changes occur as part of the tightly orchestrated ontological script that gates the aging process, they are deemed physiological, but that does not necessarily mean they are always desirable. Perhaps we should think of adrenopause as hastening what could be viewed as the "metabolic syndrome of aging." And just as we have medicalized many processes associated with aging, such as osteoporosis, cognitive decline, and menopause, we are now looking to retard other aspects of the aging process by safe and feasible means. I should point out that the "we" in the above sentence does not refer to the medical or pharmaceutical industries, but to the American public. DHEA, a powerful hormone, is classified as a food supplement for FDA purposes and is sold over the counter. Given that it is a biological agent, it cannot be patented, so there is little pharmaceutical house interest in it.

The study does not describe in detail the phenotypic or cosmetic side effects found with DHEA use in this population, but previous studies by other groups have shown that chronic DHEA use can cause androgenic side effects in women, including acne, accelerated balding, or facial hair growth in women. Other studies have suggested that DHEA improves libido, muscle mass, and energy level in those older than age 70 years, but not in perimenopausal women. DHEA can be obtained from many sources, including compounding pharmacies. I would strongly caution against using dessicated bovine adrenal as the source, as this preparation carries the risk of biological contaminants, including prion disease. Of course, medications sold as food supplements are not held to good manufacturing practices, so the quality and uniformity of over-the-counter preparations cannot be guaranteed.

Compounding pharmacies also can prepare a topical preparation. If one administers DHEA, it is best to monitor serum DHEAS levels before and after to ensure that levels are low before instituting therapy and that the levels do not rise above physiological levels after chronic use. Testosterone and estradiol circulate in nanogram and picogram quantities, but DHEAS circulates in the milligram range, so the assays available to monitor levels are robust and reliable. DHEAS has a long half-life and therefore lacks a circadian pattern and can be measured at any time of day.

In summary, DHEA is yet another of the many agents being studied for use in retarding the physiological consequences of aging. Patent opportunities notwithstanding, as the American public grays, there will be increasing demand for nutraceuticals that have promise and appear safe. We can only hope that the hype will be constrained by proactive clinical investigation. ❖

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CE Objectives

After reading *Alternative Therapies in Women's Health*, the health care professional will be able to:

1. evaluate alternative medicine and complementary therapies for women's health concerns;
2. identify risks and interactions associated with alternative therapies;
3. discuss alternative medicine options with patients; and
4. offer guidance to patients based on latest science and clinical studies regarding alternative and complementary therapies.

CE/CME Instructions

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CE / CME Questions

5. **Clinical trials on the impact of garlic on cholesterol levels have found:**
   a. consistent lowering of serum levels.
   b. conflicting results.
   c. long-term benefits when garlic is consumed for at least six months.
   d. no benefit.

6. **Apart from garlic's odor, the most serious adverse effects of garlic are:**
   a. gastrointestinal.
   b. bleeding problems.
   c. interactions with certain drugs.
   d. All of the above

7. **Controlled trials of garlic are complicated by:**
   a. the variety of active ingredients found in different formulations.
   b. people's disdain for garlic's odor.
   c. garlic being a dietary supplement.
   d. All of the above

8. **Which of the following compounds is found in chocolate?**
   a. Flavonoids
   b. Epicatechin
   c. Procyanidins
   d. All of the above

9. **In a recent trial examining potential health benefits of chocolate, which type of chocolate decreased lipid peroxidation?**
   a. White chocolate
   b. Dark chocolate
   c. Dark chocolate enriched with added polyphenols
   d. Both b and c
   e. All of the above

10. **When given orally to women, DHEA use leads to an increase in which of the following hormones?**
    a. Cortisol
    b. 17-hydroxyprogesterone
    c. Estradiol
    d. Aldosterone
    e. Adiponectin

Answers: 5. b, 6. d, 7. a, 8. d, 9. d, 10. c.

News Briefs

Cost Concerns Turning More Americans to CAM Therapies

A growing number of consumers are turning to complementary and alternative medicine (CAM)—and it might not be whom you think. New survey data show that not only are cost concerns driving more lower-income, uninsured patients to try alternative therapies, but many of these patients aren't telling their health care providers about these treatments.

The people who are concerned about the cost of their health care may be particularly vulnerable as they seek cheaper—and potentially ineffective or unsafe—care outside the realm of conventional medicine, says Ha T. Tu, MPH, a health researcher for the Center for Studying Health System Change (HSC) in Washington, DC. HSC is a nonpartisan policy research organization funded principally by the Robert Wood Foundation.

HSC recently released data showing that nearly six million adults in America have turned to CAM because they say their conventional medical treatment is too expensive. The study is based on the 2002 National Health Interview Survey, a nationally representative government survey conducted by the Centers for Disease Control and Prevention's National Center for Health Statistics. Tu is a co-author of the study.

When originally looking at the data, Tu and her co-author had a particular interest in people with certain chronic conditions and how they use CAM. The information, however, was not very good for that purpose. "So we just looked at what was interesting in the data," she says. "It led us to analyze this subgroup of people who resort to CAM because they say the cost of conventional medical treatment is too high for them."

This was a bit surprising to the researchers because the impression is usually that most CAM users tend to be somewhat better off and more educated than other people. "People who use certain CAM treatments like massage and yoga for general well-being generally have more disposable income. They choose those CAM treatments to enhance their lifestyle and their overall health and well-being," Tu says.

The millions of adults who use CAM because of cost concerns, however, were four times as likely to be uninsured as the 38 million Americans who use CAM to treat specific health conditions without citing cost as a reason, according to the study. In addition, they were almost twice as likely to have low incomes, defined as below 200% of the federal poverty level.

"It is somewhat troubling because the evidence seems to show that they are resorting to CAM because they

can't afford conventional care," Tu says. The situation may not improve soon. "Our organization tracks a lot of trends in the health system over time, such as looking at the implications of rising costs. It seems to us that as health care costs keep rising well above the rate of income growth, this group of six million people is likely to grow."

Tu also is concerned about another finding in the data—in more than half of the cases where CAM is being used because of cost concerns, the patients did not tell their health care providers about using the therapies. Or if they did, the providers were not always well-versed about the therapies' potential side effects.

"It's difficult to keep up with all the herbal remedies as well as prescription drugs. [The herbal remedies] can number in the thousands," Tu says.

She is quick to point out that not all of the six million CAM users are a cause for concern for heath care providers—she and her colleagues tried to emphasize this in their analysis. For example, some of these people are using CAM to treat conditions (i.e., echinacea to treat colds). "While the jury might be out about whether that is an effective treatment, there is no evidence it does any harm," she says.

Instead, the researchers highlight the use of two herbal remedies that are thought to cause serious side effects. St. John's wort was used by one in eight of all CAM users citing cost concerns. Known as a potential treatment for depression, the herbal remedy may have potentially dangerous side effects when used with other drugs.

Kava was used by one in 12 of this subgroup of the study. Kava is used to treat anxiety, stress, and insomnia, and has been linked to liver damage.

It might not occur to patients that an herbal remedy might react with a prescription drug, Tu says. "Consumers often think that because a product is 'natural,' it is likely to be safe." Patients with multiple health conditions also might not be able to recall all the medications—CAM remedies included—that they have taken.

For these reasons, Tu urges health care providers to be proactive and ask patients about possible CAM use. "Asking is something the health system can do without adding to cost," she says. It also may be the only opportunity to provide basic education to the patients about CAM therapies.

New Dietary Guidelines Emphasize Decreased Caloric Intake and Increased Physical Activity

In January, the Departments of Health and Human Services (HHS) and Agriculture jointly announced the release of the *Dietary Guidelines for Americans 2005*, which places stronger emphasis on reducing calorie consumption and increasing physical activity in an effort to promote health and reduce the risk of chronic diseases.

The *Dietary Guidelines* are science-based advice to help Americans live longer and healthier lives. The report includes steps Americans can take to reach goals in controlling weight, developing stronger muscles and bones, and achieving balanced nutrition to prevent heart disease, diabetes, certain cancers, and other chronic conditions.

Although eating a healthy balance of nutritious foods is essential, balancing nutrients is not enough for health. Total calories also are critical, especially as more Americans are gaining weight. Almost two-thirds of Americans are overweight or obese, and more than half get too little physical activity. The 2005 *Dietary Guidelines* place a stronger emphasis on calorie control and physical activity.

Based on the latest scientific information including medical knowledge, the *Dietary Guidelines* were prepared in three stages. First, a 13-member Dietary Guidelines Advisory Committee prepared a report based on the best available science. Next government scientists and officials developed the *Dietary Guidelines* after reviewing the advisory committee's report and agency and public comments. Finally, experts worked to translate the *Dietary Guidelines* into meaningful messages for the public and educators.

The report identifies 41 key recommendations—23 for the general public and 18 for special populations. They are grouped into the following nine general topics: adequate nutrients within calorie needs, weight management, physical activity, food groups to encourage, fats, carbohydrates, sodium and potassium, alcoholic beverages, and food safety.

The Food Guide Pyramid currently is being revised and will be released in the spring of 2005.

A complete copy of the report is available at www.healthierus.gov/dietaryguidelines/. ❖

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