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INSIDE

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The Use of Ginger to Alleviate Nausea

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Drs. Keegan are stockholders in Astra Zeneca, Glaxo Wellcome, and Pfizer.

NAUSEA IS DEFINED AS A SENSATION OF UNEASE OR DISCOMFORT perceived in the stomach and in the consciousness with an urge to vomit. As anyone who has been nauseated can recall, the unpleasant distress often is accompanied by cholinergic reactions such as increased salivation. Although nausea in itself is not an illness, it is the manifestation of other underlying physical or psychological conditions or maladies. This article addresses the effects of ginger on three common sources of nausea: pregnancy, chemotherapy, and drug reactions including postoperative nausea as well as motion sickness (kinetosis). The other causes of nausea are multiple and are not within the scope of this article.

Ginger (*Zingiber officinale*) is a plant belonging to the Zingiberacea family. The part of the plant that is used medicinally is the root or rhizome. Although it is a native of southern Asia, the plant is cultivated in many wet tropical areas such as Jamaica, China, Nigeria, India, and Haiti.[1]

History

The cultivation of ginger began in southern China and rapidly spread to the surrounding areas. The medicinal uses of the plant are recorded in the Vedic literature from the period around 500 BC. Ginger was called "maha aushadhi," which meant great medicine. In traditional Indian medicine it was used as a carminative or antiflatulent. Subsequently, the Greek physician Galen used ginger to treat conditions of bodily imbalance.[1,2] Chinese women traditionally eat ginger root during pregnancy to combat nausea, and ginger ale and ginger beer commonly have been used as "stomach settlers."[2-4]

Chemistry and Mechanisms of Action

In both the fresh and the dried ginger powder, the gingerols have been identified as the major active component. The most abundant of the gingerols is 5-hydroxy-1-(4-hydroxy-3-methoxy phenyl)decan-3-one. Other similar constituents include shogoal, zingerone, and paradol.[1] A proposed mechanism of action for ginger in the treatment of nausea may be related to its prevention of gastric dysrhythmias and the elevation of plasma vasopressin.[5]

A study in China investigated 13 volunteers with a history of motion sickness. The patients underwent circular vection, during which nausea (scored 0-3, i.e., none to severe), electrogastrographic recordings, and plasma vasopressin levels were assessed with or without ginger pretreatment in a crossover double-blind, randomized controlled trial (DBRCT). Circular vection induced a maximal nausea score of 2.5 ± 0.2 and increased both tachygastric activity and plasma vasopressin. Pretreatment with ginger (1,000 mg and 2,000 mg) reduced both the subjective sensation of nausea as well as the objectively measured parameters of tachygastria and plasma vasopressin. The use of ginger also prolonged the latency before the onset of nausea and shortened the recovery time after vection cessation. In a parallel study, the intravenous infusion of vasopressin (0.1 U/min and 0.2 U/min) induced the development of nausea and increased bradygastric activity. The authors concluded that ginger effectively reduced nausea, tachygastric activity, and vasopressin release induced by circular vection.[5] It also is possible that part of the antinauseant effect may be anti-inflammatory in nature and mediated through inhibition of prostaglandin and leukotriene biosynthesis.[6,7]

Animal Studies

Because of the subjective nature of the perception of nausea and because of its multiple causes via different mechanisms, few animal studies are available. One study from Italy evaluated the effect of ginger on the contractions of the bowel induced by electrical stimulation (EFS) or acetylcholine in the isolated rat ileum. Ginger (0.01-1000 mcg/mL) was found to inhibit both EFS- and acetylcholine-evoked contractions of the bowel. The effect of the ginger was greater in the EFS group than in the acetylcholine group. The depressant effect of ginger on EFS-induced contractions was reduced by the vanilloid receptor antagonist capsazepine (10^{-5} M), but unaffected by the alpha(2)-adrenergic antagonist yohimbine (10^{-7} M), the CB(1) receptor antagonist SR141716A (10^{-6} M), the opioid antagonist naloxone (10^{-6} M), or by the NO synthase inhibitor L-NAME (3×10^{-4} M). The authors also noted that zingerone, one of the active ingredients of ginger, did not possess inhibitory effects, but they were unable to isolate the active agent. The authors concluded that ginger produced its effect by neurologically modulating both prejunctional and postjunctional inhibitory effects on ileal contractility. They further theorized that the prejunctional inhibitory effect of ginger on enteric excitatory transmission could involve a capsazepine-sensible site (possibly vanilloid receptors).[8]

Human Studies

Pregnancy. There have been numerous clinical trials on the effects of ginger on the nausea and vomiting of pregnancy. Nausea and vomiting are the most common symptoms experienced in early pregnancy, with nausea affecting between 70-85% of women. About half of pregnant women experience vomiting.[9] Conventional antiemetics are burdened with the potential of teratogenic effects during the critical embryogenic period of pregnancy. Thus, a safe and effective natural remedy would be a welcome addition.

A systematic review in Germany was aimed at assessing the evidence for or against the efficacy and safety of ginger therapy for nausea and vomiting during pregnancy. Only DBRCTs were included. Six DBRCTs (n = 675) and a prospective observational cohort study (n = 187) met all inclusion criteria. Four of the six

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DBRCTs (n = 246) showed superiority of ginger over placebo; the other two DBRCTs (n = 429) indicated that ginger was as effective as the reference drug (vitamin B_6) in relieving the severity of nausea and vomiting episodes. The observational study retrieved and DBRCTs (including follow-up periods) showed the absence of significant side effects or adverse effects on pregnancy outcomes. There were no spontaneous or case reports of adverse events during ginger treatment in pregnancy.[10]

Similarly, another review of four recent well-controlled DBRCTs provided convincing evidence for the effectiveness of ginger in treating nausea and vomiting of pregnancy. It also provides a dosage update for the various forms of ginger.[11]

Scientists in Germany conducted a comprehensive review of the literature to summarize the pharmacological and clinical effects of this popular and widespread agent. They concluded that clinical and experimental studies suggest that ginger has some antiemetic properties, clinical evidence beyond doubt is only available for pregnancy-related nausea and vomiting. Meta-analyses could not demonstrate the postoperative antiemetic effectiveness, and effect in motion sickness or nausea/vomiting of other etiology.[12]

A study was undertaken at Ohio Northern University to review the literature assessing the safety and efficacy of the use of ginger to treat nausea and vomiting in pregnancy. The authors noted that various doses and forms of ginger were used to treat women during their first and second trimesters of pregnancy. In this review, ginger was shown to improve the symptoms of nausea and vomiting compared with placebo in pregnant women. The authors concluded that although data were insufficient to recommend ginger universally and that there were some concerns with product quality due to limited regulation of dietary supplements, ginger appears to be a fairly low-risk and effective treatment for nausea and vomiting associated with pregnancy.[13]

An Australian study was designed to estimate whether the use of ginger to treat nausea or vomiting in pregnancy is equivalent to pyridoxine hydrochloride (vitamin B_6). A randomized, controlled equivalence trial involving 291 women less than 16 weeks pregnant was undertaken. Women took 1.05 g/d of ginger or 75 mg/d of vitamin B_6 for three weeks. Differences from baseline in nausea and vomiting scores were estimated for both groups at days 7, 14, and 21. Ginger was found to be equivalent to vitamin B_6 in reducing nausea, retching, and vomiting, averaged over time, with no evidence of different effects at the three time points.[14]

Another DBRCT evaluating the effects of ginger and pyridoxine was performed in Bangkok women with nausea and vomiting of pregnancy at or before 16 weeks of gestation. Subjects were randomly allocated into two groups to take either 500 mg of ginger orally or an identical 10 mg capsule of vitamin B_6 three times daily for three days. Subjects graded the severity of their nausea using visual analogue scales before treatment and recorded the number of vomiting episodes in the previous 24 hours and again during three consecutive days of treatment. The 64 subjects in each group remained in the study. The demographic data were comparable in both groups. The ginger and vitamin B_6 significantly reduced the nausea scores from 5.0 and 5.3 to 3.3 respectively ($P < 0.001$). The mean score change after treatment with ginger was 1.4, less than with vitamin B_6, which was 2.0 but with no statistically significant difference. Ginger and vitamin B_6 also significantly reduced the number of vomiting episodes from 1.9 to 1.2 and 1.7 to 1.2 respectively ($P < 0.01$). The mean number change after treatment with ginger was 0.7, more than with vitamin B_6, which was 0.5 but with no statistically significant difference ($P = 0.498$). Minor side effects in both groups included sedation and heartburn, with a non-significant difference. The authors concluded that the nausea score and the number of vomiting episodes were significantly reduced following ginger and vitamin B_6 therapy. Comparing the efficacy, there was no significant difference between ginger and vitamin B_6 for the treatment of nausea and vomiting during pregnancy.[15]

The effectiveness of ginger in relieving the nausea and vomiting of pregnancy is well-established and the safety of using this agent is documented by previous studies as well as a Canadian study in which the primary objective of the study was to examine ginger's safety and efficacy. Pregnant women (n = 187) who were taking ginger during the first trimester of pregnancy were enrolled in the study. The women were compared with a group of women who were exposed to nonteratogenic drugs that were not antiemetic medications. The women were followed to ascertain the outcome of the pregnancy and the health of their infants. They also were asked to rate on a scale of 0 to 10 ginger's effectiveness for their symptoms. There were 181 live births, two stillbirths, three spontaneous abortions, and one therapeutic abortion. The mean birth weight was 3,542 g ± 543 g, the mean gestational age was 39 ± 2 weeks, and there were three major malformations. There were no statistical differences in the outcomes between the ginger group and the comparison group with the exception of more infants weighing less than 2,500 g in the comparison group (12 vs. 3, $P \leq 0.001$). The results suggest that ginger does not appear to increase the rates of major malformations

above the baseline rate of 1-3% and that it has a mild effect in the treatment of nausea and vomiting in pregnancy.[16]

Hyperemesis gravidarum, pernicious vomiting associated with pregnancy, in some cases is so severe that the patient requires hospitalization and intravenous fluid replacement. Investigators in England searched the Cochrane Pregnancy and Childbirth Group trials register and the Cochrane Central Register of Controlled Trials and studied 28 randomized trials of treatment for nausea and/or vomiting in early pregnancy.[17] For hyperemesis gravidarum, seven trials were identified testing treatments with oral ginger root extract, oral or injected corticosteroids, or injected adrenocorticotropic hormone, intravenous diazepam, and acupuncture. Although the mild nausea was reduced by all the studied agents, no treatments for hyperemesis gravidarum were shown to be of any benefit. Evidence from observational studies suggests no evidence of teratogenecity from any of these treatments.[9]

Chemotherapy. The treatment of cancer with various forms of chemotherapy has been a great advance in medical practice. Chemotherapy, however, frequently is accompanied by troublesome nausea and vomiting. The current standard of practice for the treatment of this condition is the use of the serotonin 5-HT3 receptor antagonists. The treatment regimen of ondansetron, a serotonin 5-HT3 receptor antagonist, in combination with dexamethasone is effective against acute nausea and vomiting, but fails to control delayed nausea and vomiting and is quite expensive. Metoclopramide along with other antiemetics are used to treat delayed nausea and vomiting. The high doses of metoclopramide needed may produce extra pyramidal side effects. Therefore, alternative cost-effective agents with a minimum of side effects are being sought to supplement the use of the standard medications. Ginger also showed good activity against chemotherapy-induced nausea and vomiting in animal models and is being studied in this context.[18] Studies at the Hospital for Sick Children in Toronto have suggested that ginger is one complementary intervention that may be beneficial in treating children receiving chemotherapy.[19]

Postoperative nausea and kinetosis. Studies of the use of ginger for the treatment of postoperative nausea, other drug-induced nausea, and motion sickness have been mixed. A systematic literature search using MEDLINE, EMBASE, and the Cochrane-Library identified 100 published reports covering 1,073 patients who had received ginger. Of these reports, 16 contained information regarding the antiemetic activity of the phytotherapeutic agent against motion sickness, postoperative nausea and vomiting, and morning sickness and hyperemesis gravidarum. The authors concluded that there was no clear evidence for the efficacy of ginger for postoperative nausea and vomiting or kinetosis. However, they concluded that taking up to 6 g/d of ginger for the treatment of nausea and vomiting in pregnancy was helpful and seemed to be associated with few side effects.[20]

A study in Thailand was designed to specifically determine the impact of a fixed dose of ginger compared with placebo on 24-hour postoperative nausea and vomiting. Five randomized trials including a total of 363 patients were pooled for analysis of preventing postoperative nausea and vomiting and postoperative vomiting. The summary relative risks of ginger for postoperative nausea and vomiting and postoperative vomiting were 0.69 (95% confidence interval 0.54 to 0.89) and 0.61 (95% confidence interval 0.45 to 0.84), respectively. Abdominal discomfort was the only side effect reported. These authors concluded that the result of their meta-analysis demonstrated that a fixed dose at least 1 g of ginger is more effective than placebo for the prevention of postoperative nausea and vomiting and postoperative vomiting.[21]

The use of ginger in the treatment of motion sickness, although traditionally and anecdotally strongly supported[2] is not clearly verified in the most recent clinical trials using meta-analytic techniques.[4,20]

Adverse Effects and Precautions

Ginger is a very well-tolerated agent. The main side effect reported in most studies was abdominal discomfort.[21] An extensive analysis of side effects in pregnant patients treated with up to 6 g/d found that 3.3% suffered from slight side effects, mainly mild gastrointestinal symptoms and sleepiness, both not requiring specific treatments. Although one severe adverse event was reported in a single study (an abortion occurred in the 12th week of gestation) a total of 136 patients were treated with ginger within the first trimester of pregnancy without complications.[20] Although the clinical experience suggests safety, pharmacokinetic data are only available for [6]-gingerol and zingiberene and available safety data do not rule out potential toxicity especially if ginger consumption is prolonged over longer periods.[12]

Most authors believe that there is a strong possibility that ginger inhibits platelet activity, specifically platelet aggregation, but confirmatory studies are still lacking.[12,22] Caution should be used when combining ginger compounds (either fresh or dried) with anticoagulant therapy especially warfarin.[23] Patients undergoing surgery should consult with their physicians because of the possible anticoagulant effects.[24]

Dosage Recommendations

For nausea and indigestion, the usual recommended dosage is 2-4 g/d of the fresh root. This is the equivalent of 0.25-1 g of the powdered root or 1.5-3 mL of the ginger tincture. Chewing small amounts of fresh ginger also may be helpful.

Summary

The use of ginger in the treatment of nausea and vomiting of pregnancy is well established. This alternative therapy also may play an ancillary role in alleviating the nausea experienced by patents undergoing chemotherapy. Although anecdotally widely used and theoretically possible, the evidence of significant relief of kinetosis is not well-established clinically. The results of using ginger in the relief of postoperative nausea are mixed. Ginger does appear to have a good safety profile. ❖

References

1. Polasa K, Nirmala K. Ginger: Its role in xenobiotic metabolism. *Indian Council Med Res Bull* 2003;33:6. Available at: www.icmr.nic.in/BUJUNE03new.pdf. Accessed July 18, 2006.
2. Langer E, et al. Ginger: History and use. *Adv Ther* 1998;15:25-44.
3. Ginger. Available at: http://en.wikipedia.org/wiki/Ginger. Accessed July 3, 2006.
4. Morin AM, et al. Is ginger a relevant antiemetic for postoperative nausea and vomiting? *Anasthesiol Intensivmed Notfallmed Schmerzther* 2004;39:281-285.
5. Lien HC, et al. Effects of ginger on motion sickness and gastric slow-wave dysrhythmias induced by circular vection. *Am J Physiol Gastrointest Liver Physiol* 2003;284:G481-G489.
6. Kiuchi F, et al. Inhibitors of prostaglandin biosynthesis from ginger. *Chem Pharm Bull (Tokyo)* 1982;30:754-757.
7. Kiuchi F, et al. Inhibition of prostaglandin and leukotriene biosynthesis by gingerols and diarylheptanoids. *Chem Pharm Bull (Tokyo)* 1992;40:387-391.
8. Borrelli F, et al. Inhibitory effect of ginger (*Zingiber officinale*) on rat ileal motility in vitro. *Life Sci* 2004;74:2889-2896.
9. Jewell D, Young G. Interventions for nausea and vomiting in early pregnancy. *Cochrane Database Syst Rev* 2003;(4):CD000145.
10. Borrelli F, et al. Effectiveness and safety of ginger in the treatment of pregnancy-induced nausea and vomiting. *Obstet Gynecol* 2005;105:849-856.
11. Bryer E. A literature review of the effectiveness of ginger in alleviating mild-to-moderate nausea and vomiting of pregnancy. *J Midwifery Womens Health* 2005;50:e1-e3.
12. Chrubasik S, et al. Zingiberis rhizoma: A comprehensive review on the ginger effect and efficacy profiles. *Phytomedicine* 2005;12:684-701.
13. Boone SA, Shields KM. Treating pregnancy-related nausea and vomiting with ginger. *Ann Pharmacother* 2005;39:1710-1713. Epub 2005 Aug 30.
14. Smith C, et al. A randomized controlled trial of ginger to treat nausea and vomiting in pregnancy. *Obstet Gynecol* 2004;103:639-645.
15. Sripramote M, et al. A randomized comparison of ginger and vitamin B_6 in the treatment of nausea and vomiting of pregnancy. *J Med Assoc Thai* 2003;86:846-853.
16. Portnoi G, et al. Prospective comparative study of the safety and effectiveness of ginger for the treatment of nausea and vomiting in pregnancy. *Am J Obstet Gynecol* 2003;189:1374-1377. Erratum in: *Am J Obstet Gynecol* 2004;190:1140.
17. Cochrane Pregnancy and Childbirth Group trials register (December 2002) and the Cochrane Central Register of Controlled Trials (The Cochrane Library, Issue 4, 2002).
18. Mahesh R, et al. Cancer chemotherapy-induced nausea and vomiting: Role of mediators, development of drugs and treatment methods. *Pharmazie* 2005;60:83-96.
19. Dupuis LL, Nathan PC. Options for the prevention and management of acute chemotherapy-induced nausea and vomiting in children. *Paediatr Drugs* 2003;5:597-613.
20. Betz O, et al. Is ginger a clinically relevant antiemetic? A systematic review of randomized controlled trials [in German]. *Forsch Komplementarmed Klass Naturheilkd* 2005;12:14-23.
21. Chaiyakunapruk N, et al. The efficacy of ginger for the prevention of postoperative nausea and vomiting: A meta-analysis. *Am J Obstet Gynecol* 2006;194:95-99.
22. Newell CA, et al. *Herbal Medicines: A Guide for Health Care Professionals.*. London: The Pharmaceutical Press; 1996.
23. Vaes LP, Chyka PA. Interactions of warfarin with garlic, ginger, ginkgo, or ginseng: Nature of the evidence. *Ann Pharmacother* 2000;34:1478-1482.
24. Larkin M. Surgery patients at risk for herb-anaesthesia interactions. *Lancet* 1999;354:1362.

Oral Probiotic Combination for Bacterial Vaginosis

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Source: Anukam K, et al. Augmentation of antimicrobial metronidazole therapy of bacterial vaginosis with oral probiotic *Lactobacillus rhamnosus* GR-1 and *Lactobacillus reuteri* RC-14: Randomized, double-blind, placebo controlled trial. *Microbes Infect* 2006;8: 1450-1454.

Abstract: In a randomized, placebo-controlled, double-blind trial, the efficacy of an oral probiotic combination was studied in women being treated for bacterial vaginosis (BV) with metronidazole. One hundred and twenty-five premenopausal women (18-44 years old) initially were entered in the study. Patients were diagnosed with BV by the presence of vaginal irritation, discharge and "fishy" odor, and Nugent criteria and detection of sialidase enzyme. All subjects received oral metronidazole (550 mg bid) from days 1 to 7 and were randomized to receive one capsule of *Lactobacillus rhamnosus* GR-1 (2.5×10^9) and *Lactobacillus reuteri* RC-14 (2.5×10^9) or placebo orally bid from days 1 to 30. The probiotic combination was supplied by Chris Hansen, Horsholm, Denmark. The primary outcome was the cure of BV as determined by a normal Nugent score, absence of clue cells, negative sialidase test, and no signs or symptoms (no discharge or fishy odor) of BV at day 30.

One hundred six women returned for the 30-day follow-up visit. In the antibiotic/probiotic group, 88% of women were cured compared to 40% in the antibiotic/placebo group ($P < 0.001$). Of the remaining antibiotic/probiotic subjects (12%), none had BV, but all had mild irritative symptoms, no discharge or odor, a weakly positive sialidase score, and intermediate Nugent score. This contrasted with the remaining 34 antibiotic/placebo subjects, of which half had BV and the other half had an intermediate status. In short, 100% of the probiotic-treated patients no longer were diagnosed with BV, while 30% of the placebo group was positive. High counts of *Lactobacillus* sp. ($> 10^5$ CFU/mL) were recovered from the vagina of 96% of the probiotic-treated subjects compared to 53% of controls at day 30. No adverse events were reported.

■ COMMENTS

THIS FASCINATING STUDY, COMPLETED IN NIGERIA, demonstrates the effectiveness of an oral probiotic combination for improving the outcome of antibiotic treatment for BV. Other studies with antibiotic protocols for the treatment of BV in Caucasian, African-American, European, Asian, and Mexican women have found failure rates as high as 39%.[1,2] It's difficult to explain why the failure rate was 60% in this current trial—especially considering that the dose of metronidazole is a standard treatment for BV. Despite these differences, the rate of cure between the probiotic-treated group and placebo group is dramatic. Also of note is the ability of the oral probiotic combination to effectively colonize in the vagina following oral use.

BV is a condition in which the normal vaginal flora changes from a predominance of hydrogen-peroxide-producing *Lactobacillus* species to high concentrations of a variety of anaerobic organisms such as *Gardnerelal vaginalis* and *Mycoplasma hominis*.[3] Although the women in the reviewed study above were symptomatic, it is important to realize that a substantial but highly variable number of women are alleged to be asymptomatic. In a study with 2,888 women presenting for routine health care visits in Birmingham. AL, the two classic symptoms of BV, discharge and odor, were reported by a minority of women with BV and only slightly more prevalent than among women without BV.[4] Complications arising from BV include increased risk of sexually transmitted diseases and elevated risk of preterm birth and spontaneous abortion.[5] Clinical interest therefore extends to not only those women with asymptomatic BV but also prevention of BV.[6]

Developed by researchers from the University or Western Ontario, the probiotic combination (previously classified as *Lactobacillus rhamnosus* GR-1 and *Lactobacillus fermentum* RC-14) used in this study is the first to be shown to colonize in the vagina when taken orally.[7,8] The two strains originally were isolated from the human female urogenital tract. A randomized, placebo-controlled trial of 64 healthy women (19-46 years old) studied oral use of the combination for 60 days.[9] Sixteen of the 64 subjects (25%) were found to have asymptomatic BV at baseline. Among these women, 59% in the probiotic group improved over the 60-day study compared to 31% in the placebo group ($P < 0.01$). Among the women without BV at baseline who did not have BV, 24% in the placebo group developed BV by day 35 and 56% by day 60 compared to none of the subjects taking the probiotic combination. In addition to a significant increase in vaginal *Lactobacillus* sp. in the probiotic-treated group, there was a significant decrease in yeast at day 28 ($P = 0.01$) and significant reduction in coliforms at days 28, 60, and 90 (30 days post-treatment; $P = 0.001$). No adverse events were reported.

Conclusion

The development of orally viable strains of probiotics

may mark a new breakthrough in both the treatment and prevention of BV. With studies demonstrating vaginal colonization after oral use for up to 60 days, the combination of *L. rhamnosus* GR-1 and *L. reuteri* RC-14 (Urex-Cap-5™, Chris Hansen, Horsholm, Denmark) appears to improve resolution of BV in women being treated with metronidazole and to also potentially decrease risk of BV. Larger and longer trials with a focus on prevention are needed in a more diverse group of women to firmly establish this interesting probiotic combination as a viable clinical option for the prevention and management of BV. ❖

References

1. Hanson JM, et al. Metronidazole for bacterial vaginosis. A comparison of vaginal gel vs. oral therapy. *J Reprod Med* 2000;45:889-896.
2. Andreeva PM, Omar HA. Effectiveness of current therapy of bacterial vaginosis. *Int J Adolesc Med Health* 2002;14:145-148.
3. Hill GB. The microbiology of bacterial vaginosis. *Am J Obstet Gynecol* 1993;169(2 Pt 2):450-454.
4. Klebanoff MA, et al. Vulvovaginal symptoms in women with bacterial vaginosis. *Obstet Gynecol* 2004;104: 267-272.
5. Leitich H, et al. Bacterial vaginosis as a risk factor for preterm delivery: A meta-analysis. *Am J Obstet Gynecol* 2003;189:139-147.
6. Reid G, Boking A. The potential for probiotics to prevent bacterial vaginosis and preterm labor. *Am J Obstet Gynecol* 2003;189:1202-1208.
7. Reid G, et al. Probiotic Lactobacillus dose required to restore and maintain a normal vaginal flora. *FEMS Immunol Med Microbiol* 2001;32:37-41.
8. Morelli L, et al. Utilization of the intestinal tract as a delivery system for urogenital probiotics. *J Clin Gastroenterol* 2004;38(6 suppl):S107-S110.
9. Reid G, et al. Oral use of *Lactobacillus rhamnosus* GR-1 and *L. fermentum* RC-14 significantly alters vaginal flora: Randomized, placebo-controlled trial in 64 healthy women. *FEMS Immunol Med Microbiol* 2003;35:131-134.

CME Questions

CME Objectives

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

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2. identify risks and interactions associated with alternative therapies;
3. discuss alternative medicine options with patients;
4. offer guidance to patients based on latest science and clinical studies regarding alternative and complementary therapies.

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After completing this activity, you must complete the evaluation form provided and return it in the reply envelope provided at the end of the semester to receive a credit letter. Upon receipt of your evaluation, a credit letter will be mailed.

5. Which has been identified as the major active component in ginger?

a. Gingerols
b. Paradol
c. Shogoal
d. Zingerone

6. Ginger was found to be equivalent to _____ in reducing nausea, retching, and vomiting?

a. magnesium
b. raspberry
c. vitamin B_6
d. vitamin B_{12}

7. What is the most commonly reported side effect of ginger in most studies?

a. Abdominal discomfort
b. Abortion
c. Inhibition of platelet aggregation
d. Sleepiness

8. In a recent study of women with bacterial vaginosis, *Lactobacillus rhamnosus* GR-1 and *Lactobacillus reuteri* RC-14, a probiotic combination used in conjunction with oral metronidazole, improved resolution and potentially decreased the risk of BV.

a. True
b. False

Answers: 5. a, 6. c, 7. a, 8. a.

News Briefs

Course Leads to Board Certification in Integrative Holistic Medicine

A week-long course that will lead health professionals to board certification in integrative holistic medicine will be offered this fall. Presented by the American Board of Holistic Medicine (ABHM) and Scripps Center for Integrative Medicine, "The Science and Clinical Application of Integrative Holistic Medicine" will teach physicians how physiology, biochemistry, nutrition and herbs, exercise, emotions, spirituality, and other elements of integrative holistic medicine can affect health and healing. The course will be held from Oct. 28 through Nov. 3, 2006, in San Diego, CA.

More than 25 "thought leaders" and medical experts will present applications during the course for effectively treating nearly 40 of America's most common diseases and chronic conditions such as heart disease, diabetes, chronic pain, migraines, cancer, and menopause. The conference faculty includes the following nationally known speakers, clinicians, professors, authors, and researchers:

- Robert Anderson, MD, founder and executive director of ABHM in East Wenatchee, WA.
- Mimi Guarneri, MD, founder and medical director, Scripps Center for Integrative Medicine in San Diego.
- Lee Lipsenthal, MD, president of the American Board of Holistic Medicine in San Anselmo, CA.
- Steven Pratt, MD, best-selling author, SuperFoods RX in San Diego.
- David Simon, MD, medical director of The Chopra Center for Wellbeing in Carlsbad, CA.
- Lawrence Palevsky, MD, president of the American Holistic Medical Association in Northport, NY.

Continuing medical education credits are offered for physicians, nurses, pharmacists, physician assistants, and nurse midwives. A one-day introductory course on integrative holistic medicine also is available for the public on Saturday, Oct. 28. Call (858) 587-4404 or go to www.scrippsintegrativemedicine.org for a full conference brochure or to register.

NCCAM Adds 5 Members to Advisory Council

The National Center for Complementary and Alternative Medicine (NCCAM) in Bethesda, MD, has added five new members to the National Advisory Council for Complementary and Alternative Medicine (NACCAM). The council serves as the principal advisory body to NCCAM, a component of the National Institutes of Health within the Department of Health and Human Services.

The council, which meets three times a year, is composed of physicians, scientists, licensed alternative and complementary medicine practitioners, and representatives of the public who contribute their time and expertise over a four-year term. Council members offer advice and recommendations on the prioritization, conduct, and support of complementary and alternative medicine research, including research training and disseminating health information derived from NCCAM's research.

The new NACCAM members are:

- Silvia Corvera, MD, professor in the Program in Molecular Medicine and Department of Cell Biology at the University of Massachusetts Medical School in Worcester, MA.
- Joan E. B. Fox, PhD, professor at Cleveland Clinic Lerner College of Medicine of Case Western Reserve University in Cleveland, OH.
- Ted J. Kaptchuk, OMD, assistant professor of medicine, and director of the Asian Medicine and Healing Program at Harvard Medical School, Osher Institute, in Cambridge, MA.
- Bruce G. Redman, DO, clinical professor in the Department of Internal Medicine at the University of Michigan Health System in Ann Arbor, MI.
- Danny D. Shen, PhD, professor and chair in the Department of Pharmacy at the University of Washington in Seattle, WA. ❖

In Future Issues:

Reiki for Relaxation and Pain Relief

DHEA for Menopausal Symptoms

The Importance of Oral Hygiene in Women's Health

Exercise and Cardiovascular Disease

Soy and Hot Flashes