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Alternative Treatments for Dysmenorrhea

By Adriane Fugh-Berman, MD, and Anthony Scialli, MD

A VARIETY OF CAM TREATMENTS, INCLUDING DIET, EXERCISE, acupuncture, chiropractic, transcutaneous electrical nerve stimulation (TENS), herbs, and dietary supplements, are used to treat dysmenorrhea. This article will discuss therapies commonly prescribed by complementary and alternative medicine (CAM) practitioners and will review the few controlled trials that exist.

Diet

The belief that avoiding fat or heavy meals lessens dysmenorrhea has been explored in several studies, and there may be some relationship between fat intake—or the type of fat eaten—and menstrual cramps. The effect of a low-fat diet on dysmenorrhea and water retention was tested in a recent crossover study of 33 women (21 completed the trial).[1] Baseline data were gathered in the first month, after which women were assigned to a low-fat vegetarian diet or their regular diet plus a placebo pill; after two months the groups were crossed over. There was a substantial dropout rate. The duration of dysmenorrhea significantly decreased from baseline (3.9 days) to diet (2.7 days); there was no significant change from baseline to placebo supplement (3.6 days). However, differences in pain intensity between the placebo supplement phase and diet phase were significant for only one of three days with pain.

Fish and Fish Oil

The type of fat consumed also may make a difference in dysmenorrhea. Fish oil, high in omega-3 fatty acids, modulates prostaglandin production and may have an effect on menstrual cramps. A Danish survey of 181 women ages 20-45 utilized food intake diaries and found that menstrual pain was significantly correlated with a low intake of animal and fish products and a low omega-3 to omega-6 dietary ratio.[2]

In a placebo-controlled, crossover study, 42 adolescents with dysmenorrhea were randomized to placebo or fish oil supplements (containing 1,080 mg eicosapentaenoic acid, 720 mg docosahexaenoic

Volume 3 • Number 3 • March 2001 • Pages 17-24

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acid, and 1.5 mg vitamin E); after two months the groups were crossed over. As assessed by the Cox Menstrual Symptom scale, dysmenorrhea symptom scores decreased significantly (from 69.9 to 44.0) after fish oil treatment; there was no difference between placebo and baseline.[3]

Exercise

Women who exercise appear to have fewer menstrual symptoms than women who do not exercise. A review of studies on dysmenorrhea and exercise identified seven trials on the subject (three observational studies and four randomized controlled trials).[4] Of the four randomized, controlled trials (two compared different types of exercise and two compared exercise to no exercise), all found a significant reduction in dysmenorrhea among exercisers. Two observational studies found a lower prevalence of dysmenorrhea in regular exercisers; the third (which adjusted scores for disposition, medication, stress, and mood) found that regular exercisers had more menstrual symptoms than non-exercisers. The reviewers point out that these studies were inadequately blinded (difficult to imagine an adequate blind for exercise) and that better studies are needed.

Chiropractic

Chiropractic uses manual techniques to adjust spinal vertebrae. Although this treatment is more accepted for back pain or musculoskeletal disorders, chiropractic is used commonly to treat excessive bleeding or dysmenorrhea. A small dysmenorrhea trial compared chiropractic manipulation (at least twice a week) in eight women with three controls.[5] Seven of the eight women treated with chiropractic experienced decreased pain and disability, compared with none of the controls.

In a randomized controlled trial of 45 women with primary dysmenorrhea, 24 women received spinal manipulative therapy (SMT) and 21 women received "sham" manipulation.[6] A Menstrual Distress Questionnaire (MDQ) and a visual analog pain scale were administered 15 minutes before and 60 minutes after treatment, and blood was drawn. Compared with pretreatment values, the SMT group had less abdominal pain than the sham-treated group and lower scores on the MDQ. Both groups experienced significantly decreased levels of the prostaglandin $F_{2\alpha}$ metabolite 15 keto-13,14-dihydroprostaglandin (prostaglandin $F_{2\alpha}$ is increased in women with dysmenorrhea), but there was no significant difference between groups.

Acupuncture

One study of dysmenorrhea compared two acupuncture groups with two control groups. Eleven women received real acupuncture at "real" acupuncture points, 11 received "placebo" acupuncture at non-acupuncture points, 10 women continued prior treatment ("standard" controls), and 11 continued prior methods but also received extra office visits (visit control).[7] Both acupuncture groups were treated for three weeks of each month (every week except during menses) for three menstrual cycles. Mean monthly pain scores were not significantly different between groups. However, the proportion of women whose average pain scores were halved after treatment was significantly higher in the real acupuncture group compared to each of the other groups.

Transcutaneous Electrical Nerve Stimulation

TENS has become an accepted treatment for various kinds of pain, and although not commonly prescribed for dysmenorrhea, there is evidence that TENS is effective for this condition. In a randomized, crossover study, 32 women with severe primary dysmenorrhea were treated with TENS for two cycles, sham TENS for one cycle, and ibuprofen for one cycle.[8] During the ibuprofen cycle, the subjects received 400 mg ibuprofen at the onset of dysmenorrhea and continued treatment (400 mg qid) for up to three days. During the TENS cycle, negative electrodes were placed bilaterally about 4 cm lateral

Alternative Therapies in Women's Health, ISSN 1522-3396, is published monthly by American Health Consultants, 3525 Piedmont Rd., NE, Bldg. 6, Suite 400, Atlanta, GA 30305.

VICE PRESIDENT/PUBLISHER: Brenda L. Mooney.
EDITORIAL GROUP HEAD: Leslie G. Coplin.
MANAGING EDITOR: Kevin New.

GST Registration Number: R128870672.

Periodical rate postage pending at Atlanta, GA.

POSTMASTER: Send address changes to ***Alternative Therapies in Women's Health***, P.O. Box 740059, Atlanta, GA 30374.

Back issues: $33. Missing issues will be fulfilled by Customer Service free of charge when contacted within one month of the missing issue's date.

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Subscription Prices

United States
$249 per year (Student/Resident rate: $100).
Multiple Copies
1-9 additional copies: $179 each; 10 or more copies: $159 each
Outside the United States
$279 per year plus GST (Student/Resident rate: $115 plus GST).

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to the umbilicus with the positive electrode positioned over the suprapubic area. This placement was meant to stimulate sensory nerves in the thoracic 10-12 dermatomes. One hundred pulses per second with a 100-microsecond pulse width were used; the patient adjusted stimulation individually. TENS stimulation was used continuously during the first eight hours of the cycle and then as needed. During the TENS and placebo TENS cycles, up to 1,600 mg/d ibuprofen was allowed.

Compared to the other two groups, significantly more subjects receiving TENS did not require ibuprofen or required less ibuprofen during the first 24 hours after the onset of dysmenorrhea and for the duration of menstruation. TENS also significantly delayed the need for ibuprofen (by an average of 5.9 hours). The use of TENS alone resulted in good to excellent pain relief in 42.4% of subjects (pain included cramps, backache, leg cramps, continuous abdominal pain, headache, and general body aches), while placebo TENS resulted in relief in only 3.2%. TENS also significantly reduced diarrhea, menstrual flow, clot formation, and fatigue compared with placebo TENS.

An open, randomized crossover study in 12 women compared the use of TENS stimulation and oral naproxen (500 mg) on dysmenorrhea and intrauterine pressure.[9] Pain scores were significantly reduced within 30-60 minutes following treatment with TENS and within 19-120 minutes after naproxen administration. Naproxen significantly suppresses uterine activity (measured by an intrauterine microtransducer catheter) while TENS treatment caused no significant change in uterine activity.

Other CAM Treatments

Herbs, dietary supplements, or yoga may be recommended by CAM practitioners, but no clinical trials were identified on these therapies. Magnesium, calcium, or vitamin E are some of the dietary supplements that may be recommended by CAM practitioners. Herbs used to treat dysmenorrhea include cramp bark (*Viburnum opulus*), black haw (*Viburnum prunifolium*), raspberry leaf (*Rubus idaeus*), root or flower of dandelion (*Taraxacum officinale*), nettle (*Urtica dioica*), chamomile (*Matricaria recutita*), yarrow (*Achillea millefolium*), and catnip (*Nepeta cataria*), usually in the form of hot tea or infusions (which are essentially oversteeped teas). None of these benign herbs has been associated with significant adverse effects. Black haw (but not the closely related cramp bark) contains oxalates and should be avoided by those on a low-oxalate diet.

Yoga teachers often prescribe relaxing, supine poses for menstruating women, and instruct women to avoid upside-down poses (shoulderstand, headstand, and handstand) during the menses. The basis for this proscription apparently is fear of retrograde menstruation and subsequent endometriosis. However, almost all women experience retrograde menstruation to some extent, and its relationship to endometriosis is unclear.

Conclusion

A variety of herbs and dietary supplements are used to treat dysmenorrhea. The most popular, listed in this article, have a good safety profile and require no warnings. Most of these trials of CAM treatments for premenstrual syndrome used inappropriate statistical testing (parametric tests are not appropriate for analyzing ranked scores of symptoms) that could affect conclusions (see *Alternative Therapies in Women's Health*, February 2001, pp. 9-12).

There is limited evidence to support the use of exercise, TENS, chiropractic, or fish oil for the treatment of dysmenorrhea. Results were equivocal in the single trial that examined the effect of acupuncture and the single trial that examined a low-fat vegetarian diet. ❖

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St. John's Wort and Photosensitivity

By Jerry M. Cott, PhD

PHOTOSENSITIZATION AFTER EXPOSURE TO ST. JOHN'S wort (*Hypericum perforatum*) may develop in fair-skinned people. First noted in animals that grazed in fields dotted with St. John's wort, an early report was about a case of St. John's wort poisoning in German Blackface sheep. After St. John's wort ingestion, all lightly pigmented hairless parts of skin were photosensitized. In summer, many sheep suffered from inflammatory skin conditions around the ears, the eyes, and the bridge of the nose.[1]

Photosensitivity

Two case reports of photoactivated toxicity with St. John's wort have been reported. A 61-year-old woman who had been using St. John's wort for three years developed elevated itchy erythematous lesions in light-exposed areas; these resolved after discontinuation of the herb.[2] The second report is an unusual case report of neuropathy associated with St. John's wort and sun exposure. A 35-year-old woman who took St. John's wort (ground whole herb, 500 mg/d) for mild depression developed subacute polyneuropathy after sun exposure.[3] One month after starting St. John's wort, the patient developed stinging pain in sun-exposed areas, including the face and hands; she noted mild pain that appeared to be worsened by sun exposure. A few hours after sunbathing she developed symptoms on her arms and legs (again confined to sun-exposed skin). Examination was consistent with allodynia; St. John's wort was withdrawn and symptoms began to improve in two weeks and disappeared over two months.

For most fair-skinned people receiving high doses of St. John's wort, the extent of photosensitivity is a slight reduction in the minimum tanning dose. This has been demonstrated in a randomized, placebo-controlled trial in which fair-skinned subjects who burned easily were given metered doses of hypericum extract (LI 160) and were exposed to UVA and UVB irradiation.[4] Hypericin and pseudohypericin plasma concentrations also were monitored. The study was conducted in winter.

In a single-dose segment, 13 volunteers received placebo or a standardized hypericum extract (900, 1,800 or 3,600 mg, containing 0, 2.8, 5.6, and 11.3 mg of total hypericins [sum of hypericin and pseudohypericin]) in a double-blind, crossover design. Maximum total hypericin plasma concentrations were observed about four hours after drug administration, and were 0, 28, 61, and 159 mcg/mL, respectively. At baseline and then four hours after drug intake, subjects were exposed on small areas of their back to increasing doses of solar simulated irradiation (SSI, containing both UVA and UVB); another part was exposed to selective UVA irradiation. Minimal erythema dose was determined five, 20, and 68 hours after irradiation. SSI sensitivity was the same in both groups after hypericum treatment. Sensitivity to selective UVA light was increased slightly (approximately 20%) after the highest dose of hypericum. There was no correlation between total hypericin plasma concentrations and photosensitivity.

In the multiple dose segment, 50 volunteers received 600 mg hypericum extract tid (twice the normal recommended dose) with a daily dose of 5.6 mg of total hypericin. Maximum plasma concentration of hypericins was approximately 44 mcg/mL. In the St. John's wort group, there was a slight increase in SSI sensitivity (approximately 9%) and a larger increase to UVA light (approximately 21%).

Phototoxic Compounds

Phototoxic photosensitivity from hypericum preparations appears to be due to the naphthodianthrones, hypericin, and pseudohypericin. These hypericins are photoactive quinones that produce singlet oxygen and free radicals when exposed to light. There is a wide range of susceptibility to phototoxic effects of drugs, and there is clearly a dose-related effect.

An in vitro study utilizing fetal calf serum indicates that pseudohypericin is more photoactive than hypericin. Therefore, the authors speculate that pseudohypericin, which is present in higher concentrations than hypericin in hypericum, may be of greater concern regarding phototoxicity.[5] However, at steady state, plasma levels of pseudohypericin are only half that of hypericin.[6]

Hypericin itself, however, is clearly phototoxic. Because hypericin has demonstrated significant antiviral activity in vitro, a Phase I safety study using intravenous synthetic hypericin was performed in 30 HIV-infected adults.[7] All patients receiving multiple intravenous.

doses of 0.5 mg/kg and more than 73% of those receiving 0.25 mg/kg experienced moderate-to-severe phototoxicity. Severe cutaneous phototoxicity (an erythematous rash associated with painful dysesthesias involving the areas exposed to light) was observed in 11 of 23 subjects. All reactions resolved after discontinuation of therapy.

Photosensitivity rarely is reported in St. John's wort clinical trials; however, pale patients who burn easily may not realize they burn more easily. Hypericum is well tolerated with an incidence of adverse reactions similar to placebo. The most common adverse effects are gastrointestinal symptoms, dizziness/confusion, and tiredness/sedation. Kasper and Schulz reviewed efficacy and safety from 20 controlled clinical trials (a total of 1,787 patients) of the standardized hypericum extract approved for the treatment of depression in Austria and Germany.[8] The authors concluded that the effective dosage of the currently used extract is 600-900 mg/d, and that the risk of photosensitization was without clinical relevance at the recommended dosages.

Based on animal and human experimental studies, Schulz et al estimates that it would take approximately 30-50 times the recommended dose of 900 mg/d of the standardized extract to produce severe phototoxic effects in humans.[9] However, the Schulz book misstates the hypericin plasma level to be 50 mcg/mL rather than 50 ng/mL. The Brockmoller et al study in fair-skinned individuals showed that plasma levels of total hypericins (44 ng/mL)[4] not far above therapeutic levels (14 ng/mL)[6] can increase sensitivity to artificial UV irradiation by approximately 21% (intensities approximately three times higher than average daily exposure in Miami, FL).[10]

Schempp et al reported the high-performance liquid chromatographic detection of hypericin and pseudohypericin in human serum after oral administration of the hypericum extract LI 160 in 12 healthy volunteers.[11] After single-dose administration of 1,800 mg hypericum, the mean serum level of total hypericins was 43 mcg/mL. After steady-state administration (300 mg/d tid for seven days) the mean serum level of hypericins was 12.5 mcg/mL. These levels are far below hypericin levels that are estimated to be phototoxic by these investigators (> 100 mcg/mL).

Bernd et al attempted to estimate the potential risk of phototoxic skin damage with St. John's wort by comparing the phototoxic agent psoralens to hypericin in cultivated human keratinocyte cultures.[12] A concentration- and light-dependent decrease in DNA synthesis (determined by the incorporation rate of bromodeoxyuridine) was noted with very high hypericin concentrations (> 50 mcg/mL) combined with UVA or visible light (but not UVB) radiation. Phototoxic effects were seen with 10 mcg/mL psoralens. The authors conclude that the results confirm a phototoxic effect of hypericin on human keratinocytes, but note that blood levels achieved with normal therapeutic use would be too low to induce phototoxic skin reactions.

Cataract Risk

In 1999, alarm spread regarding the association of St. John's wort with the development of cataracts. Misinformed press reports warned that people taking St. John's wort on a regular basis could put themselves at risk if they were exposed to bright light.[13] These reports arose as a result of work carried out by Schey et al.[14] This was an vitro study in which alpha-crystallins isolated from calf lenses were incubated in 50 micromolar hypericin (approximately 1,000 times therapeutic plasma concentrations) in the presence and absence of light. Hypericin induced photo-polymerization of crystallins in the presence of light. The clinical implications of this are unclear. It should be kept in mind that UV light is a risk factor for cataracts on its own.[15] Additionally, antioxidant intake appears to have a protective effect. An

Types of Photosensitivity Reactions

Photosensitivity reactions may be either phototoxic or photoallergic. Phototoxic reactions to chemicals can occur in anyone and essentially are exaggerated sunburn responses, characterized by erythema and urticaria; a delayed sunburn-type pattern (within 72 hours); or a delayed melanin hyperpigmentation reaction (72-96 hours). Phototoxic photosensitivity is dependent on the concentration of photosensitizing compounds found in the drug or plant. The pathogenesis is formation of free radicals, reactive oxygen species, or other toxic photoproducts. Photoallergic reactions, on the other hand, are far less common than phototoxic reactions, depend on individual immunological reactivity, and occur only in previously sensitized individuals. The rash also appears different; it is papular, vesicular, or eczematous in appearance, resembling allergic contact eczematous dermatitis or lichen planus-like eruptions. The pathogenesis involves the conjugation of a photoproduct with a protein, producing an antigen.

Adapted from: Fitzpatrick TB. *Color Atlas and Synopsis of Clinical Dermatology*. 3rd ed. New York: McGraw-Hill; 1997.

in vitro test in which a large concentration of hypericin (inconsistent with achievable serum levels), in the absence of any antioxidants normally present in sera, is applied directly on an avascular lens preparation is of questionable clinical significance. No eye problems have been reported in any of the many trials involving St. John's wort.

Topical Hypericum

Although the most common use of St. John's wort in North America is for the treatment of depression, the traditional use of this herb includes its topical use for superficial wounds, burns (including sunburn), and dermatitis. Schempp et al tested the immunomodulatory properties of topical preparations of hypericum and a synthesized constituent, hyperforin.[16] They investigated the alloantigen function of human epidermal cells (EC) in vivo in a mixed EC lymphocyte reaction (MECLR). The results demonstrated an inhibitory effect of both hypericum extract and hyperforin on the MECLR and on the proliferation of T lymphocytes. The authors suggest that this may provide a rationale for the traditional treatment of inflammatory skin disorders with hypericum extracts.

The photosensitizing effects of topical hypericum also have been studied and appear to be much more mild than the effects of oral or intravenous administration. Schempp et al also studied the effects of topical application of hypericum oil (hypericin 110 mcg/mL) and hypericum ointment (hypericin 30 mcg/mL) on skin sensitivity to solar simulated radiation.[17] Sixteen volunteers received either oil (n = 8) or ointment (n = 8). The minimal erythema dose was determined by visual assessment, and skin erythema was evaluated photometrically. No change was apparent in visual erythema score after application of either hypericum oil or ointment. However, with the more sensitive photometric measurement, an increase of the erythema index after treatment with hypericum oil could be detected. The results suggested a trend toward increased photosensitivity that might become relevant in fair-skinned individuals, in diseased skin, or after extended sun exposure.

Conclusion

Oral ingestion of high doses of St. John's wort is associated with a significant increase in UV-induced erythema in fair-skinned individuals and rarely is associated with phototoxic photosensitivity reactions. Intravenous administration of high-dose hypericin results in severe phototoxicity that precludes its clinical use. Topical St. John's wort preparations appear to have low potential for photosensitization. Although hypericin clearly is linked to photosensitivity reactions, pseudohypericin also may be involved. The association of St. John's wort with cataracts is based on overinterpretation of an in vitro study; there is no human evidence of increased risk of cataracts. ❖

Dr. Cott is Scientific Director and Chief Science Officer at Scientific Herbal Products, Inc. in College Park, MD.

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CME Questions

10. Randomized, controlled trials support which of the following for the treatment of dysmenorrhea?
a. Transcutaneous electrical nerve stimulation
b. Fish oil
c. Exercise
d. All of the above

11. Which of the following herbs used to treat dysmenorrhea contains oxalates?
a. Black haw (*Viburnum prunifolium*)
b. Cramp bark (*Viburnum opulus*)

12. Phototoxicity associated with St. John's wort appears to be due to:
a. hypericin.
b. pseudohypericin.
c. hypericin and pseudohypericin.
d. hyperforin.

13. A delayed sunburn-type rash (up to 72 hours) or delayed hyperpigmentation response (72-96 hours) is typical of:
a. a phototoxic reaction.
b. a photosensitivity reaction.

Clinical Abstracts

With Comments by Jerry Cott, PhD

Lack of Effect for Ginkgo?

Source: van Dongen MC, et al. The efficacy of ginkgo for elderly people with dementia and age-associated memory impairment: New results of a randomized clinical trial. *J Am Ger Soc* 2000;48:1183-1194.

Design: A 24-week, randomized, double-blind, placebo-controlled, parallel-group, multicenter trial.

Subjects: Two hundred fourteen older persons with dementia (either Alzheimer's or vascular dementia; mild-to-moderate degree) or age-associated memory impairment. Participants were recruited from 39 homes for the elderly in the southern part of The Netherlands. Patients randomized to the study included 63 patients with dementia and 151 patients without dementia.

Treatment/Dose/Duration: EGb 761 (either 240 mg/d or 160 mg/d) or placebo for 24 weeks. After 12 weeks of treatment, those initially randomized to ginkgo were re-randomized to ginkgo or placebo. Those initially randomized to placebo continued on placebo for another 12 weeks.

Outcome Measures: Neuropsychological testing (trail-making speed, digit memory span, and verbal learning,) clinical assessment (presence and severity of geriatric symptoms), depressive mood, self-perceived health and memory status, and behavioral assessment (self-reported level of instrumental daily life activities). Outcomes were assessed after 12 and 24 weeks.

Results: An intention-to-treat analysis showed no effect on any of the outcome measures for those assigned to ginkgo (n = 79) compared with placebo (n = 44) for the 24-week period. At the 12-week assessment, the combined high- and low-dose ginkgo groups (n = 166) performed slightly better with regard to self-reported activities of daily life but slightly worse with regard to self-perceived health status compared with the placebo group (n = 48). No subgroup was found to benefit from ginkgo. Ginkgo was not associated with any serious adverse events.

Funding: Dr. Willmar Schwabe Arzneimittel GmbH, Karlsruhe, Germany (the makers of EGb761).

Comments: These results are in contrast to those of previous ginkgo trials. Most of the previously reported trials found positive effects for ginkgo compared with placebo. Most studies of ginkgo have used EGb761, an extract standardized to 6% terpene lactones (ginkgolides and bilobalide) and 24% flavonol glycosides. The largest trial to date, a randomized, double-blind, placebo-controlled trial of 309 patients with Alzheimer's or multi-infarct dementia, found that patients who received EGb 761 (120 mg/d) scored higher on the Alzheimer's Disease Assessment Scale-Cognition subscale (ADAS-Cog).[1] After one year of treatment, 29% of patients receiving ginkgo showed at least a four-point improvement on the test compared with 14% of those receiving placebo. Although improvement was not apparent in the Clinician's Global Impression of Change, beneficial treatment effects were apparent to caregivers as measured by the Geriatric Evaluation by Relative's Rating Instrument.

A recent meta-analysis by Oken identified more than 50 published articles on the use of ginkgo for dementia;

however, only four studies, with a total of 424 patients, met all inclusion criteria.[2] Overall, there was a significant effect ($P < 0.0001$) that translated into a 3% difference in the ADAS-Cog. The authors concluded that there is a small but significant effect of three to six months of treatment with 120-240 mg ginkgo on objective measures of cognition in Alzheimer's disease.

It should be noted that the effect size of ginkgo in these trials is equivalent to marketed cognitive enhancers.[3]

Why are the results of the van Dongen study so different from previous trials? Earlier trials were limited largely to patients with dementia; it is possible that the treatment does not work as well or as quickly for age-associated memory impairment. The largest previous trial lasted a year (however, other trials have shown a benefit at three or six months). It also is possible that ginkgo is more effective at preventing deterioration than in improving memory acutely.

This study attempted to answer too many questions at the same time, including the effects of both dose and duration. While these are important, relevant questions, this trial was too limited in number of subjects and too brief in duration to bear so heavy a burden of questions; the second randomization added unnecessary complexity and further reduced the number of subjects in each cell. It is unclear whether any cognitive enhancer could have been shown effective under these conditions. Although the authors expressed surprise at the lack of effect, they offered no compelling explanation for why their results differed from others. Future trials should be larger, of longer duration, and include a positive comparison drug whenever possible. ❖

References

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Clinical Abstracts

With Comments by Adriane Fugh-Berman, MD

Exercise and Stroke Risk in Women

Source: Hu FB, et al. Physical activity and risk of stroke in women. *JAMA* 2000;283; 2961-2967.

Objective: To examine the association between physical activity and risk of stroke and stroke subtypes in women.

Design/Setting/Subjects: 4,065 nurses, aged 40-65, without cardiovascular disease or cancer in 1986, who completed detailed physical activity questionnaires in 1986, 1988, 1992. This is a subset of the Nurses' Health Study, a prospective cohort study of 72,488 female nurses.

Outcome Measures: Stroke occurring between 1986 and June 1, 1994. Physical activity level was calculated as metabolic equivalent tasks (METs) and compared among quintiles.

Results: Relative risks in the lowest to highest METs were 1.00, 0.98, 0.82, 0.74, and 0.66 (P for trend = 0.005). Independent of vigorous physical activity, walking was associated with a significant reduction in stroke risk. After multivariate adjustments, walking was associated with reduced risk of total stroke and ischemic stroke; a brisk walking pace was associated with a lower risk of stroke compared with a normal or slow walking pace.

Comments: Even more reason to encourage patients to exercise, and to make time for exercise ourselves! We now can add stroke to the conditions for which exercise reduces the risk; other conditions include coronary heart disease, diabetes, and depression (see *Alternative Therapies in Women's Health*, May 2000, pp. 33-35). The authors note that previous prospective cohort studies on physical activity and risk of stroke have shown mixed results, but that negative studies did not collect detailed or repeated information on exercise. One of the pieces of good news from the recent study is that women who had been sedentary in their younger lives but became more active in middle or later adulthood achieved a benefit compared to peers who remained sedentary. Exercise apparently does not have to be vigorous to be effective; if one expends the same amount of energy, walking is as effective in reducing stroke risk as other exercise. As a walker who dislikes almost all other forms of exercise, I would add that the rhythm involved in walking is very conducive to a meditative state. ❖

In Future Issues:

Cranberries for Urinary Tract Infections

CAM and Interstitial Cystitis