Pain is a major part of multiple sclerosis (MS). For many people with the disease, frequent battles against joint and muscle aches, stabbing facial pain, searing eye pain, and other types of acute or chronic pain have become a way of life.

Prevalence estimates of MS-related pain vary widely, ranging from rare to about 90%. However, several recent papers place the prevalence of pain in MS toward the higher end of that range, to around 40% to 80%.1-4 Germaine Griswold, PhD surveyed 63 people with MS randomly selected from an MS care center to find out about the frequency and types of pain they experienced, and the effects of pain on mood and quality of life. She reported her preliminary findings at the CMSC 2003 annual meeting1 and discussed her newly updated results in an interview with MS Exchange.

PAIN—COMMON AND LIFE-ALTERING
Fifty-two women and 11 men with MS completed a mailed packet of questionnaires asking about the types, frequency, and severity of any pain that they experienced. Overall, 97% indicated that they had some type of pain and 80% reported MS-related pain.

“Paroxysmal limb pain—sharp, shooting pains in the legs, hands, and sometimes the trunk—was most common, occurring in 63% of patients,” noted Dr. Griswold, formerly a researcher at the Bernard W. Gimbel MS Center in Teaneck, New Jersey and now with Bellevue Hospital in New York City. “Dysesthetic extremity pain, which is similar but duller and more chronic in nature, was second most common at 52%” (Table).

Also, 40% of patients said that they had headaches and 83% reported more than one kind of pain.

Interestingly, participants were asked about two other types of pain that have not received much attention in the MS literature, iatrogenic pain and secondary pain. “About 36% of the sample reported iatrogenic pain resulting from interferon beta-1a injection reactions or an adverse effect of a particular MS treatment,” Dr. Griswold said. A comparable percentage had secondary pain from a condition such as decubitus ulcers or a urinary tract infection, she added.

Further analysis demonstrated that pain syndromes in MS can be classified as either acute—migraines, trigeminal neuralgia, and optic neuritis, or chronic—dysesthetic extremity pain, paroxysmal limb pain, and spasms. “However, this does not mean that these types of pain tend to occur together more often,” explained Dr. Griswold.

The survey provided additional evidence of a link between pain and...
psychologic symptoms; pain correlated significantly with poor mood and depression.

There was also a strong association between pain and fatigue, as well as with declines in general activity and the ability to work, relate to others, and enjoy life. “Clearly, because of their physical pain, the patients had a reduced quality of life,” Dr. Griswold emphasized.

**Approaches to Pain Relief**

Most of the people surveyed by Dr. Griswold reported using prescription medications such as anticonvulsants or antidepressants for their MS-related pain. However, many more treatments are available, including other conventional medications and alternative therapies such as acupuncture, yoga, meditation, and biofeedback.

In a study published in the *Journal of Neurology* in 2003, the prostaglandin E1 analogue misoprostol was shown to be effective in the treatment of trigeminal neuralgia associated with MS. Another recent study showed that low-dose gabapentin combined with either carbamazepine or lamotrigine also may be an effective treatment for this condition.

People with trigeminal neuralgia that does not respond well to medications may opt for percutaneous radiofrequency rhizotomy—surgery that involves the severing of nerves responsible for particular pain sensations. Although this procedure may sound drastic, it was shown to be safe and effective in a large Canadian study, completely relieving pain in 81% of MS patients with this condition. There was, however, a 50% recurrence rate during the mean follow-up period of 52 months.

Anticonvulsants may also relieve paroxysmal limb pain and other acute MS-related body aches, pains, and burning or prickling sensations. These types of pain...
may also be relieved by tricyclic antidepressants such as amitriptyline, which work by modifying the central nervous system’s response to pain. Pressure stockings and gloves and warm compresses may help as well.

Pain therapy does not work if patients don’t receive it. Health care providers should ask about MS-related pain during routine office visits because patients do not always associate MS with pain and may not bring it up themselves.

For the treatment of Lhermitte’s sign—a stabbing, electric-shock–like sensation that runs from the back of the head down the spine upon flexion of the neck—anticonvulsants are commonly used and are often effective. In addition, MS patients with this type of acute pain may get relief from a soft cervical collar that limits neck flexion.

TREATMENT OF CHRONIC PAIN

The same medications used for acute pain syndromes in MS patients are also appropriate when those syndromes are chronic. Dull, aching pain tends to respond best to tricyclic antidepressants.

Since the absolute and comparative efficacy and tolerability of pharmacologic agents for MS-related muscle spasms have not been well documented, no firm recommendations can be made about the use of those agents. However, baclofen, tizanidine, and dantrolene are sometimes prescribed for managing spasms. These patients may also benefit from regular stretching exercises and maintaining an adequate, balanced intake of water, sodium, and potassium.

According to Dr. Griswold, chronic back pain and other forms of ongoing musculoskeletal pain are particularly common in people with MS because of spasticity and added stress on the body due to walking difficulties. Heat, massage, physical therapy, alternative therapies, and spasticity medication have all been used for musculoskeletal pain in MS.

Injection-site reactions, medication side effects, and other forms of iatrogenic pain can sometimes be remedied through treatment changes such as switching therapies, she said. Secondary pain often improves when the source is treated.

Whether conventional or alternative, pain therapy certainly does not work if patients don’t receive it. Health care providers should ask about MS-related pain during routine office visits. “This is important because MS patients do not always associate MS with pain and may not bring it up themselves,” Dr. Griswold pointed out.

MSX

—Timothy Begany

REFERENCES


MIXED MESSAGES ABOUT MARIJUANA

One of the most controversial issues in multiple sclerosis (MS) management today is the safety and efficacy of cannabis. Clinicians face the dilemma of whether or not to recommend it to their patients. Numerous anecdotal reports, ranging from case reports to larger-scale studies, suggest that cannabis relieves symptoms of spasticity, chronic pain, depression, and anxiety in people with MS. However, there is a dearth of clinical trials to support these claims.

“The jury is still out regarding whether cannabis works and whether it’s safe,” said Colleen Harris, RN, MN, Nurse Coordinator and Nurse Practitioner at the University of Calgary Multiple Sclerosis Clinic in
Alberta. “We have begun to see some studies, but until more large-scale studies are conducted, it may be irresponsible to recommend it to patients.”

**SUBJECTIVE VERSUS OBJECTIVE MEASURES**

Two large-scale studies conducted during 2003 looked at the use of cannabis in patients with MS. Page et al\(^1\) focused on patient use and perception of cannabis based on questionnaires mailed to 780 adults with MS in Southern Alberta. Among the 420 respondents, whose impairment ranged from mild to severe, almost half (43%) had tried cannabis at some point in their lives. Of those who used cannabis regularly for control of MS, many reported improvements in symptoms of anxiety and depression, spasticity, chronic pain, and walking and balance (Table).

However, objective measures do not necessarily back up subjective perceptions. A randomized, placebo-controlled study conducted in the United Kingdom by Zajicek et al\(^2\) looked at 630 patients with stable MS and muscle spasticity. The researchers divided participants into three groups: 211 received oral cannabis extract, 206 received a synthetic version of delta-9-tetrahydrocannabinol (delta-9-THC)—an active compound found in cannabis—and 213 received placebo.

After 15 weeks, spasticity as measured by the Ashworth scale (a measure of tonic spasticity) was virtually identical in all three groups. Patients in the treatment groups showed no changes in lower-body or upper-body components of the Ashworth score. However, the researchers did find a significant treatment effect on walk times between baseline and follow-up. The median time to walk 10 meters was reduced by 12% in patients taking delta-9-THC, compared with a reduction of 4% in patients taking cannabis extract and 4% in patients taking placebo.

Most notably, subjective improvements in spasticity occurred in approximately 60% of patients in the cannabinoid treatment groups versus 46% of the placebo group. In addition, patient-reported pain decreased in about 54% of patients in the cannabinoid groups versus 37% of those in the placebo group.

“Even though the investigators did not find significant improvement on the Ashworth scale, we should not discount patient-reported relief,” commented Colleen O’Connell, MD, FRCPC, staff physiatrist at the Stan Cassidy Centre for Rehabilitation in Fredericton, New Brunswick. “Clinical improvement cannot always be measured and tabulated by a statistical device.”

**ORAL VERSUS INHALED CANNABIS: DELIVERY ISSUES**

Ms. Harris noted that the study conducted by Zajicek and colleagues used oral forms of cannabinoids. However, because cannabis research is still in its infancy, there is insufficient information regarding a potentially effective oral dosage.

“Researchers have a hard time preparing cannabis in an oral formulation with a stable dose—no one quite knows what the right dose would be,” Ms. Harris explained. “It appears that the inhaled form is more effective but perhaps a different dose of oral cannabis would be equally effective. At present, we have no safe method to test an inhaled preparation.”

Dr. O’Connell agreed, noting that the pharmacodynamics of inhaled THC differ from those of oral formulations. “The peak effect is much earlier when inhaled, and inhalation avoids the first-pass effects through the liver seen with oral ingestion,” she explained.

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**EXPERIENCE OF CURRENT CANNABIS USERS WITH MS**

<table>
<thead>
<tr>
<th>Symptom</th>
<th># (%) perceiving improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety/depression</td>
<td>29 (67%)</td>
</tr>
<tr>
<td>Spasticity</td>
<td>25 (58%)</td>
</tr>
<tr>
<td>Chronic pain</td>
<td>21 (49%)</td>
</tr>
<tr>
<td>Fatigue</td>
<td>17 (40%)</td>
</tr>
<tr>
<td>Walking/balance problems</td>
<td>14 (33%)</td>
</tr>
<tr>
<td>Tremor</td>
<td>13 (30%)</td>
</tr>
<tr>
<td>Visual problems</td>
<td>7 (16%)</td>
</tr>
<tr>
<td>Weight loss</td>
<td>6 (14%)</td>
</tr>
<tr>
<td>Sexual problems</td>
<td>6 (14%)</td>
</tr>
<tr>
<td>Bowel problems</td>
<td>5 (12%)</td>
</tr>
<tr>
<td>Bladder problems</td>
<td>4 (9%)</td>
</tr>
<tr>
<td>Memory loss</td>
<td>2 (5%)</td>
</tr>
</tbody>
</table>

Data extracted from Page et al. *Can J Neurol Sci.* 2003.\(^1\)
Multiple Sclerosis Nursing in 2004: A Global Perspective

IOMSN Welcomes New Affiliate Member

On behalf of the Board of Directors of the International Organization of Multiple Sclerosis Nurses, it is my pleasure to welcome the Swedish MS Nurses Association (SMSF) as an affiliate organization of the IOMSN. The application that was sent by the SMSF was outstanding and the Board’s decision was unanimous. Anna Osterlund was recently elected to represent SMSF as the IOMSN Board representative.

The SMSF applied for affiliate membership for several reasons, which included increasing networking and collaboration between Swedish nurses and nurses worldwide; increasing exchange of clinical and research information/knowledge within the MS nursing area; facilitating access to support and educational materials for patients and health care professionals; and increasing interest among Swedish nurses for taking the Multiple Sclerosis Nursing International Certification Examination. The organization’s stated mission is to “work and develop our achievements according to evidence-based nursing and long-term experience with the aim to optimize health and quality of life among people with multiple sclerosis.”

The IOMSN looks forward to a long, collaborative relationship with the SMSF as we strive to improve the lives of all those affected by multiple sclerosis.

To become a member of the SMSF, the person must be a licensed nurse with a Swedish nursing registration; meet people with MS in his or her professional and clinical practice and/or perform research in MS nursing; and pay an annual membership fee. For further information about the SMSF, contact: Swedish MS Nurses Association, Attn: Anna Osterlund, MS Center, Dept of Neurology R54, Huddinge University Hospital, SE-14186, Stockholm, Sweden; +46-8-585 822 44; e-mail: anna.osterlund@neurotec.ki.se.

The IOMSN looks forward to a long, collaborative relationship with the SMSF as we strive to improve the lives of all those affected by multiple sclerosis.

LONG-TERM GOALS OF THE SWEDISH MS NURSES ASSOCIATION

- Describe and emphasize the role of the MS nurse in health care among people with MS in Sweden
- Facilitate the development of the MS nurse’s role in Sweden
- Increase the quality of nursing care in Sweden
- Provide knowledge about MS and nursing care in MS
- Establish/develop and continuously update standards for nursing care in MS
- Serve as a forum for MS nurses in education, support, and the exchange of knowledge and experience in the MS nursing area

IOMSN Update

—Kathleen Costello, RN, MS, CRNP, MSCN
President, IOMSN
Postpartum Social Support Needs of Mothers With MS

The effects of pregnancy on MS have attracted research interest in recent years, with some women reporting relief of symptoms during pregnancy. In contrast, the postpartum period seems to pose particular challenges for mothers with MS. “Studies have shown1 that exacerbations tend to double during the first three postpartum months and somewhat less than double during the next few months as compared with the year before pregnancy,” said Elsie E. Gulick, PhD, RN, FAAN. In addition, the increased levels of fatigue and postpartum depression experienced by mothers in the general population during the postpartum period are compounded in women with MS, she noted.

Dr. Gulick, Professor Emeritus at the College of Nursing at Rutgers University in Newark, New Jersey, examined the first-year postpartum social support needs of mothers with MS using outcome measures that included the Postpartum Support Questionnaire, the MS-Related Symptom Scale, and personal telephone interviews.

The First Six Months
The first half of the study looked at the social support needs of 175 mothers during the first six postpartum months. The women were assessed at one, three, and six months. “Social support is multidimensional and includes provisions for emotional, instrumental, and informational support,” explained Dr. Gulick.

In terms of emotional support—which involves providing empathy, caring, love, and trust—the mothers reported that they needed to have time for relationships with friends and other interests; to be reassured of their worth and their competency in the mothering role; to feel appreciated; to have others recognize that they themselves needed help either for the infant or various household duties; and to have people talk to them and listen to them.

When it came to instrumental support (help with infant/child care and household tasks), the women reported the need for help with laundry, cooking, cleaning, and caring for the baby. “They said they desired this help in order to get uninterrupted periods of rest and also to prevent excessive fatigue,” reported Dr. Gulick.

The mothers also required information about caring for themselves, birth control methods, and managing infant care, “especially with respect to the baby’s behavior, crying, sleeping patterns, and ways of comforting the infant,” noted Dr. Gulick (see Table). “Not surprisingly, I found that first-time mothers with MS needed more information than mothers with the disease who had already been down that road before.”

The mothers who had what they perceived as adequate emotional support had significantly fewer prob-
lems with emotional distress (defined as anxiety, depression, and loneliness), said Dr. Gulick. “Notably,” she added, “the mothers who had higher levels of instrumental support had significantly lower levels of emotional distress during the entire six months.”

**MS Symptoms During the First Six Months**

Mothers who had increased emotional distress during the first postpartum month also had high levels of fatigue, sensory symptoms such as numbness, and brain stem symptoms like double vision or blurred vision, related Dr. Gulick. At three months, mothers who had increased emotional distress also reported an increase in elimination-related problems and brain stem symptoms. At six months, those who were more emotionally distressed had more brain stem symptoms.

Mothers who had increased emotional distress during the first postpartum month also had high levels of fatigue, sensory symptoms such as numbness, and brain stem symptoms like double vision or blurred vision.

“Usually, when women have babies, people come and help for the first month or two, and then tend to pull back their support,” noted Dr. Gulick. “Emotionally, physiologically, and socially, mothers in the general population—particularly those with MS—require ongoing support. The infant is growing and developing and becoming more active and demanding, while the mother may be sleeping less,” she said. “Some of these mothers went back to work, so they had to worry about finding proper child care and taking care of the baby as well as their partners.”

**The Second Six Months**

In the second half of the study, 172 of the mothers participated and assessments were performed at nine and 12 months. Nine-month data were similar to that gathered at 12 months, she said. The mothers who had higher instrumental and emotional support also reported lower levels of various MS symptoms, which included sensory symptoms such as pins and needles, motor symptoms such as arm or leg weakness or falling, brain stem symptoms, elimination problems, and fatigue, she said.

“In the presence of higher levels of social support, the mothers were able to function better in relation to activities of daily living,” noted Dr. Gulick. “Attention to personal care improved, as did the quality of interaction with friends and family and intimacy with their partners,” she added.

“Social support for mothers with MS is truly needed during the whole year following birth. However, the support has to be given at the right time,” Dr. Gulick cautioned. Some mothers reported that they received support but it didn’t come when they needed it. “A few mothers indicated that they received too much support and they weren’t allowed to do the things they wanted to do for the baby,” she added.

**Postpartum Relapses**

Dr. Gulick found that mothers whose pregnancies were relatively uneventful (no relapses) tended to do quite well during the postpartum period. However, mothers who had troublesome pregnancies with relapses or increased symptoms tended to relapse not only during the three months following delivery but during the second six-month period as well.

In a previous study, Dr. Gulick found that mothers who breast-fed had fewer relapses than mothers who did not.3 “Quite a number of mothers tell me that when they stop breast-feeding some of their symptoms start to worsen,” she remarked. “However, I wouldn’t recommend breast-feeding for mothers with MS who had troublesome pregnancies. They should consider starting or resuming disease-modifying therapy because of their increased tendency to relapse,” she cautioned.

What can clinicians do to better address the postpartum needs of women with MS? “Health care providers must be alert to the potential difficulties these mothers may experience and provide counseling for them and their partners, or refer them to other relevant services that can provide appropriate support,” stressed Dr. Gulick. “In addition, clinicians can inquire..."
about the need and availability of social support for the mother during the prenatal period and discuss the specific kinds of support that will likely be needed during the postpartum period.” —Rosalee L. Blumer

REFERENCES

The Clinical Care Committee Requests Input for New MS Certification Exam

The Clinical Care Committee of the CMSC is moving forward on an initiative to create a certification examination for multiple sclerosis specialists. Any licensed professional involved in MS care is eligible to take the exam. The exam will be computer based. The first exam is scheduled for August 14–28.

The committee needs your help in creating the exam. We need a large bank of multiple choice questions in several selected areas of comprehensive care. The questions should be evidence-based and be constructed to have only one correct answer. The selected areas include:

1. Fundamentals of multiple sclerosis
   a. Pathophysiology
   b. Etiology and epidemiology
2. Diagnosis of MS
   a. Criteria
   b. Presenting symptoms
   c. Diagnostic testing
   d. Natural history and clinical course
3. Multidisciplinary management of MS
   a. Relapses, disease-modifying therapies
   b. Symptom management—fatigue, pain, spasticity, tremor, weakness, altered mobility, visual impairment, cognitive impairment, elimination dysfunction
   c. Health maintenance—wellness strategies, preventing complications
   d. Psychosocial issues—emotional and cognitive issues, vocational issues, family and cultural issues, abuse and neglect, end of life issues
   e. Complementary and alternative medicine
4. Patient empowerment
   a. Advocacy—patient rights, negotiating systems
   b. Patient and family education—disease specific, goal setting, community resources, legal issues, advanced directives, clinical research

Please e-mail your exam questions to Sallyann Henry at the Professional Testing Corporation: shenry@ptcny.com.

Thank you in advance for agreeing to be a part of this exciting new initiative. We need your questions as soon as possible and will continue to accept them on an ongoing basis to ensure a large and fresh pool of questions.

—Colleen Harris, RN, BN, MN
Chair of Clinical Care Committee of the CMSC

INTERESTED IN SHARING YOUR KNOWLEDGE WITH THE WORLD? JOIN THE IOMSN!

The IOMSN is the only organization dedicated to the education of MS nurses around the world. If you wish to join the IOMSN, you can access it on the World Wide Web at www.iomsn.org, or contact the organization at:

IOMSN

c/o Bernard W. Gimbel MS Comprehensive Care Center
718 Teaneck Rd • Teaneck, NJ • 07666
(201) 837-0727
Smoking is the most common delivery method of inhaled cannabis and is extremely risky. “While oral cannabis appears to have a relatively benign side effect profile, smoked cannabis has a high degree of risk because it is extremely carcinogenic,” Ms. Harris pointed out. Smoked cannabis has three times more tar and higher carcinogenic contents than cigarettes. Additionally, like cigarettes, smoked cannabis can contribute to respiratory disorders.

There are other forms of inhaled cannabis. Devices that use steam (“bongs”) might be a viable and less-noxious alternative. “One day we might even have delivery systems similar to the metered dose inhalers used in asthma. Or, perhaps we will be able to use patches or liquid formulations, but we’re not there yet,” said Dr. O’Connell.

“In the US, researchers are in a catch-22. They are unable to research cannabis because it is illegal to obtain or possess it; but without compelling evidence of its medical benefit, there is no chance of changing the law.”

**The Clinician’s Dilemma**

Recommending any form of cannabis to MS patients is fraught with problems. In addition to the risks associated with the smoked formulation, there is insufficient evidence to support its use orally and the legal availability of these substances varies widely. “Due to potential health hazards, our clinic does not endorse smoked cannabis—even though the Canadian legal system allows patients to obtain marijuana for medical use with an appropriate endorsement from a physician,” Ms. Harris explained.

Dr. O’Connell said that in rare circumstances, she does support patients in their use of cannabis. “I wouldn’t recommend it for patients with a history of psychosis, because some studies have linked cannabis use to psychotic episodes. Likewise, patients with respiratory disorders should avoid inhaled forms of cannabis.”

Patient history plays a critical role in the decision. “If a patient has tried every other treatment and has not experienced relief, I think that cannabis is an appropriate intervention to try,” said Dr. O’Connell. “On the other hand, if a patient has been unwilling to try other therapies, or has a long history of cannabis use prior to illness onset, I would not support its use on medical grounds. Under those circumstances, the patient may be using the medical situation as a ruse for obtaining an illegal substance,” she added.

The paucity of research contributes to the dilemma and is a source of frustration to clinicians. “There is overwhelming evidence for the efficacy of cannabis based on anecdotal and case reports as well as personal information from individual patients. However, because of political and legal issues we have not been able to properly research the drug,” Dr. O’Connell remarked.

The problem is even worse in the United States, Dr. O’Connell pointed out. “At least in Canada we have finally obtained government permission to conduct a study on the use of cannabis in patients with MS. In the United States, researchers are in a catch-22. They are unable to research cannabis because it is illegal to obtain or possess it; but without compelling evidence of its medical benefit, there is no chance of changing the law. In addition, under federal law, patients are unable to obtain medical exemptions that decriminalize their use of cannabis, as they can in Canada,” she said.

Ms. Harris concurred, adding that health care professionals should encourage efforts to change these laws. “I think we owe it to our patients to look into and thoroughly research cannabis. If there is a potential for it to relieve suffering, then we need to study it.”

**REFERENCES**

COMMUNITY-BASED STUDY CONFIRMS HIGH PREVALENCE OF DEPRESSION IN MS

Is the prevalence of clinical depression significantly higher in MS patients than in the general population or in those with other chronic health conditions? Previous studies have estimated the major depression prevalence in MS to range between 37% and 54%. However, a group of Canadian researchers hypothesized that this figure may be skewed because the numbers were derived from studies of patients seeking care at MS clinics, a population likely to contain more individuals with depression.

Researchers from the University of Calgary in Alberta argued that a study with a larger sample size and a community-based population is necessary to obtain a more accurate reading of the prevalence of depression in MS patients. They obtained data from the Canadian Community Health Survey (CCHS), which involved more than 115,000 subjects over age 18. The survey used an instrument designed to detect depression, the Composite International Diagnostic Interview Short Form for Major Depression.

Among the overall CCHS population, major depression was detected in 9,019 people (a 7.4% prevalence), with higher rates among women than men (9.4% versus 5.3%). The number of people with MS in the total sample was 322, and among these, depression was noted in 15.7% (13.1% of men and 16.7% of women). MS-related impairment correlated positively with depression prevalence in this study, as did younger age (Table).

This study also confirmed that depression is indeed more prevalent among MS patients as compared with people reporting any chronic health condition (9.1% prevalence). The investigators acknowledged that—even with high rates of MS in Canada and the large study population used—the relatively small sample size of MS patients tended to limit the ways in which data could be analyzed.

EPILEPSY DRUG MAY REDUCE PHASIC SPASTICITY IN MS

The antiepileptic drug levetiracetam may be a safe and effective means of reducing phasic spasticity—a form of spasticity associated with spasms and painful muscle cramps—in people with MS, according to researchers at the University of Texas Southwestern Medical Center in Dallas. However, the drug was not found to alleviate tonic spasticity, which is characterized by muscle stiffness.

Twelve MS patients started levetiracetam therapy at a dose of 250 mg daily. During the next two to four weeks, the daily dose was titrated as high as 3,000 mg. Half of the patients received levetiracetam alone while the rest received levetiracetam in combination with one to three additional drugs for spasticity. The patients were treated for one to four months, with a mean time of 3.2 months between baseline and follow-up evaluations.

Levetiracetam was generally well tolerated. Five mild adverse events were reported and one patient dropped out of the study due to drug-induced edema, which resolved with discontinuation of the drug. All 11 remaining patients (9 female, 2 male) experienced a decrease in Penn Spasm scores (a measure of phasic spasticity). In addition, three of the subjects reported improvements in neuropathic pain. However, there were no changes in modified Ashworth scores, which measures tonic spasticity. Cognitive function was not monitored but no adverse cognitive events were reported during the study.

Previous clinical studies of levetiracetam in epilepsy have shown that the drug was well tolerated. In a recent study by Cramer et al (Epilepsia, 2000), epilepsy patients who took levetiracetam self-reported significant improvements in cognition. “Given the high
incidence of underlying cognitive problems in patients with MS (45%-65%) and the need for polypharmacy to adequately treat MS,” the authors remarked, “we felt that levetiracetam might offer unique safety benefits in this population.”


**Vitamin D and MS—What’s the Connection?**

Considering that MS is more prevalent in cooler climates, are vitamin D intake and sunlight exposure related to the etiology of the disease? A recent NIH-supported study based at the Harvard School of Public Health sought to explore any possible links between vitamin D, sunlight, and MS.

The researchers used data from the Nurses’ Health Study (NHS) and Nurses’ Health Study II (NHS II), each of which involved close to 120,000 female nurses and examined dietary habits over a number of years, based on the nurses’ responses to food frequency questionnaires. A total of 173 cases of MS were identified from both study populations—129 definite cases and 44 probable.

Subjects were divided into five groups, or “quintiles,” ranging from highest to lowest vitamin D intake. Those in the highest quintile were more likely to use multivitamin supplements and to consume more vitamin D-containing foods such as milk and fish—and were less likely to smoke—than the women in the lower quintiles.

The investigators found the age-adjusted relative risk for MS to be lowest in the group with the highest vitamin D intake (95% confidence interval; RR 0.40 to 1.12), not statistically significant, but indicative of a trend ($P = 0.03$). This association was also true for those whose vitamin D intake was derived from supplements, but not in those whose vitamin D was solely from dietary sources.

What about sunlight? The group was unable to make a connection using geographical data, but cited other studies that have shown higher sunlight exposure to be inversely related to the incidence of MS. A German study also noted seasonal fluctuations of MS exacerbations, and animal studies have suggested that vitamin D supplementation may favorably affect the course of autoimmune diseases that mimic MS.

In this study population, women who used supplemental vitamin D, primarily from multivitamins, had an impressive 40% lower risk of MS than those who did not. However, the effects of vitamin D could not be assessed independently of other vitamins that may also impact MS, such as B vitamins, folic acid, zinc, and vitamin E.

Writing in the journal *Neurology*, the authors cautioned that “whether or not this finding reflects a protective effect of vitamin D intake on risk of MS remains to be established.” Another good question to explore, they proposed, would be whether vitamin D supplementation could slow the progression of already-established MS.


Women who used supplemental vitamin D, primarily from multivitamins, had an impressive 40% lower risk of MS than those who did not.
CONTINUING EDUCATION CONFERENCE CALENDAR

April 17–20, 2004
American Association of Neuroscience Nurses 36th Annual Meeting. Location: San Antonio, Tex. Contact: AANN, 4700 W Lake Ave, Glenview, IL 60025; (847) 375-4733; fax: (877) 734-8677; e-mail: info@aann.org; Web site: www.aann.org.

April 24–May 1, 2004
American Academy of Neurology 56th Annual Meeting. Location: San Francisco. Contact: AAN, 1080 Montreal Ave, Saint Paul, MN 55116; (800) 879-1960 or (651) 695-2717; fax: (651) 695-2791; e-mail: lstrachota@aan.com; Web site: http://am.aan.com.

September 4–7, 2004
8th Congress of the European Federation of Neurological Societies. Location: Paris. Contact: EFNS Head Office, University Campus, Courtyard 1, Alser Strasse 4, A-1090 Vienna, Austria; +43 1 889 05 03; fax: +43 1 889 05 03-13; e-mail: headoffice@efns.org; Web site: www.kenes.com/efns2004.

October 3–6, 2004
129th Annual Meeting of the American Neurological Association. Location: Toronto. Contact: ANA, 5841 Cedar Lake Rd, Suite #204, Minneapolis, MN 55416; (952) 545-6204; fax: (952) 545-6073; e-mail: lorijanderson@msn.com; Web site: www.aneuroa.org.

October 6–9, 2004
Joint Annual Meeting of ECTRIMS and RIMS. Location: Vienna. Contact: ECTRIMS 2004 c/o Congress Service, PO Box Clarastrasse 57, CH-4005 Basel, Switzerland; +41 61 686 77 77; fax: +41 61 686 77 88; e-mail: info@akm.ch; Web site: www.akm.ch/ectrims2004.

October 23–27, 2004
34th Annual Meeting of the Society for Neuroscience. Location: San Diego. Contact: Society for Neuroscience, 11 Dupont Circle NW, Suite # 500, Washington, DC 20036; (202) 462-6688; fax: (202) 462-9740; e-mail: info@sfn.org; Web site: www.sfn.org.

CMSC 2004 ANNUAL MEETING
The 2004 Annual Meeting of the Consortium of Multiple Sclerosis Centers will take place June 2–6, 2004 in Toronto. The theme is “The Art and Science of Multiple Sclerosis Care.” Presentations on timely issues involving MS patient care and basic and clinical research, as well as those that reflect collaboration between specialties, are encouraged. Go to www.mscare.org for abstract submission forms and registration information. Contact: Tina Trott, Executive Assistant, Consortium of Multiple Sclerosis Centers, c/o Gimbel MS Center, 718 Teaneck Rd, Teaneck, NJ 07666; (201) 837-0727 ext 120; fax: (201) 837-9414; e-mail: tina.trott@mscare.org.

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