



## TO TREAT OR NOT TO TREAT? THE CONTROVERSY OVER BENIGN MS

One of the biggest challenges faced by clinicians who treat patients with multiple sclerosis (MS) is the variability and unpredictability of the disease course. Should all MS patients be treated with disease-modifying agents right away? Or are there some instances where a “wait-and-see” approach would be the best course to pursue?

The current trend among neurologists is to treat all cases of relapsing-remitting MS with immunomodulatory medications as early as possible. A National Multiple Sclerosis Society consensus statement<sup>1</sup> (updated in February of 2005) recommends initiation of a disease-modifying agent as soon as possible following a definite diagnosis of MS with a relapsing course, and in selected patients with a first attack who are at high risk for MS.

But what about patients whose disease appears to follow a benign course? Although various definitions of benign MS exist, it is generally described as disease that is present for 10 or more years with little or no disability. Although patients may experience MS-related symptoms, the disease

does not restrict their activities of daily living.<sup>2</sup>

### THE OLMSTED COUNTY MS PREVALENCE COHORT

“Regardless of the definition used,” said Sean J. Pittock, MD of the Department of Neurology, Mayo Clinic, in Rochester, Minnesota, “the question remains as to whether these patients should be treated with immunomodulatory therapies.”

In a 2004 article in the *Annals of Neurology*,<sup>3</sup> Dr. Pittock et al reported the results of a natural history study of MS patients in Minnesota. In 2001, the researchers followed up all patients from the 1991 Olmsted County MS prevalence cohort. “We identified patients who had had MS for 10 years or more in 1991. At follow-up, they had had MS for at least 20 years,” remarked Dr. Pittock.

Although many of the patients were still doing well, some had developed disability. “We wanted to determine whether there was a way to predict which patients with so-called ‘benign’ MS would eventually reach a level of significant disability,” he explained.

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“Until it is clear that the patient has continuing disease activity clinically and/or radiographically, in which case the need for treatment is clear to the clinician and to the patient, it is advisable to observe a period of no treatment while monitoring for inflammatory disease activity,” recommended Dr. Pittock.

those patients have benign MS, that would mean about 36,000 patients may not need to be taking an injectable drug every week for the rest of their lives.”

### TAKING A REASONABLE APPROACH?

How can neurologists identify which newly diagnosed patients are likely to follow a benign disease course? “When a patient is first diagnosed with MS, the duration of the disease from onset is often less than 10 years. As a result, it is difficult for clinicians to predict long-term disability,” explained Dr. Pittock. However, he added, it is not uncommon for a clinician taking the history of a patient presenting with a first MS attack to find that he or she had symptoms suggestive of an attack (visual blurring, hemisensory loss, etc) several years earlier. “Thus, the clinician is provided information of the natural course and duration of disease for that particular patient.

“For example, a patient might present with symptoms suggestive of a spinal cord attack with weakness or

In an effort to develop a method for predicting future disability, Dr. Pittock and colleagues divided the patients into two groups: those with Expanded Disability Status Scale (EDSS) scores between 0 and 2 and those with EDSS scores of 2.5 to 4.0 in 1991. Among the key findings of the study:

- Patients with EDSS scores of 2 or lower and a disease duration of at least 10 years had a 93% chance of continuing to have low disability in the second decade.
- Patients with EDSS scores of 2.5 to 4.0 for at least 10 years had a 43% chance of continuing to have low disability in the second decade.

- Those with motor pathway deficit at onset were significantly less likely to be in the mild group after 20 years. (No other differences between groups were found.)

Based on these results, Dr. Pittock and colleagues proposed that benign MS be defined as “patients with MS for 10 years or more who have EDSS score of 2 or less because they have a less than 10% likelihood of developing significant disability.” According to this study, patients with benign MS make up 17% of all MS patients.

“There are currently about 211,000 MS patients in the United States,” stated Dr. Pittock. “If 17% of

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sensory loss in the lower extremities that resolved after four weeks. The neurologist learns from the patient's history that he or she had a brief episode of left-sided facial numbness 10 years prior to the current episode but never saw a clinician," said Dr. Pittock. "The neurologic examination reveals minimal abnormalities. A brain MRI shows several signal abnormalities consistent with MS but no enhancing lesions."

These are the kinds of patients for whom he would recommend a "wait and see" approach to treatment (Table). "For some patients, the automatic commencement of medication may not be the best thing."

However, which treatment approach should be used for patients presenting with their first attack if the clinician has no clear knowledge of the disease course over time? A recent issue of *Archives of Neurology* contained two articles on the controversy over whether to begin early treatment of benign MS. In one article, Dr. Pittock elaborated on his suggested approach to treating such patients<sup>4</sup>: "Until it is clear that the patient has continuing disease activity clinically and/or radiographically, in which case the need for treatment is clear to the clinician and to the patient, it is advisable to observe a period of no treatment while monitoring for inflammatory disease activity."

### MS STUDIES ADVOCATING EARLY TREATMENT

Dr. Pittock also discussed the Controlled High Risk Avonex<sup>®</sup> Multiple Sclerosis (CHAMPS) trial and the Early Treatment of MS study. These studies demonstrated that treatment with interferon beta-1a reduces the likelihood of conversion to clinically definite MS within two years of a clinically isolated syndrome (CIS).<sup>5,6</sup>

"However," he pointed out, "there is no evidence that delaying the

## Table

### RATIONALE BEHIND A "WAIT-AND-SEE" APPROACH TO MS TREATMENT

- MS often has a favorable natural history.
- Disease-modifying drugs are only partially effective in the short-term and prevention of disability in the long-term is unproven.
- With prolonged treatment, it is hard to distinguish whether a favorable outcome reflects a favorable natural history or successful treatment in an individual patient, especially if treatment is started without a period of observation.
- Expense, adverse effects, and neutralizing antibodies are a concern and patients may be reluctant to commit to long-term parenteral medications, especially within the first few months following diagnosis.
- Prospective clinical and MRI monitoring may allow identification of patients who need treatment.

Source: Adapted from Pittock et al. *Arch Neurol.* 2006.<sup>4</sup>

second attack has any long-term effect on disability. Based on CHAMPS, seven patients need to be treated to prevent one person from developing clinically definite MS within three years." Additionally, more than half of placebo-treated patients in both studies did not have a second attack during the two- to three-year follow-up. Those who did convert to clinically definite MS usually did so during the first year, suggesting that a brief observation period could adequately identify those who most need treatment.

Dr. Pittock also noted that approximately 50% of interferon beta-1a-treated patients still demonstrated clinical or MRI evidence of active disease during the initial 18 months of the CHAMPS trial. "The incomplete benefit from early interferon treatment is shown by this finding," he stated.

"At the Mayo Clinic, we treat most, but not all, of our relapsing-remitting MS patients with disease-modifying therapy. Treating all patients with a diagnosis of MS or CIS immediately with disease-modifying drugs overlooks an important subset of MS patients who may not need to go through the monetary costs and

side effects of injecting themselves with medicines for the rest of their lives," he explained. "The final decision about whether and when to initiate treatment should be shared by the patient and clinician after an unbiased review of the relevant information."

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Dr. Pittock, Joseph Herbert MD, and Robert Zivadinov, MD will be presenting their respective research in a clinical course on benign MS at the 20th Annual Meeting of the Consortium of Multiple Sclerosis Centers on May 31, 2006.

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# TEEN ADVENTURE WEEKEND

## FOCUSES ON TEAM-BUILDING AND INTERACTION

Kids with multiple sclerosis (MS) generally face the reality of day-to-day isolation with little chance of meeting other kids with the disease. Now, a popular new summer camp—dubbed “Teen Adventure Weekend”—offers a unique opportunity for interaction, social and therapeutic support, and team-building.

### EMPOWERING YOUNG PEOPLE

Created and sponsored by the National Pediatric MS Center at Stony Brook University Hospital in Long Island, NY, with support from the National MS Society, the program is held annually at the Canonicus Camp and Conference Center in Exeter, Rhode Island. Children ages 11 to 18 with MS and related demyelinating diseases are welcome to attend. Pamela Block, PhD, a cultural anthropologist and faculty member in the Occupational Therapy Program at Stony Brook, developed the program, which is based on a similar health promotion program for adults.

“The purpose of the camp is to normalize the MS experience as much as possible while fostering a feeling of empowerment and self-efficacy,” said William MacAl-



lister, PhD, a neuropsychologist/researcher at the National Pediatric MS Center at Stony Brook University Hospital and camp staff member since its inception two years ago. “We encourage everyone to participate at his or her own comfort level. We also try, if possible, to increase that level along the way so

**The popular new summer camp offers teens a unique opportunity for interaction, social and therapeutic support, and team-building.**

that each attendee can overcome personal obstacles.”

### A BALANCED PROGRAM

The program is a mixture of structured recreational activities and informal sessions where kids can simply “hang out” and share experiences. Camp participants hail from all over the country and arrive in time for a Friday evening opening ceremony. Dinner, a bon-

fire, and an ice-breaker exercise are provided to get everyone moving, interacting, and talking.

Saturday and Sunday are long, full days packed with challenging outdoor fun. One of the key goals of the camp is to promote a sense of team-building. That way, the children learn to depend on each other cognitively and physically while participating in recreational activities like kayaking, sailing, and rope climbing, explained Dr. MacAllister.

“It is always interesting to watch the incredible support and respect that the kids have for each other as they meet individual challenges—invariably, we see the whole group coming together to cheer on those who are having a more difficult time,” he said. “It’s just a great experience for them and one of the most meaningful things I’ve ever been involved in.”

Another important goal is to provide an opportunity for personal dialogue among the kids, related nurse

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## Multiple Sclerosis Nursing in 2006 *A Global Perspective*

### Telemedicine in MS

Used increasingly in various populations, telemedicine may be especially useful for clinicians working with multiple sclerosis (MS) patients, according to Jodie Haselkorn, MD, of the Veterans Affairs MS Center of Excellence–West at the University of Washington in Seattle. “Since it can be challenging for clinicians to address the multiple impairments seen in this population during routine office visits, telemedicine can extend traditional outpatient services,” she said.

### Supplementing Traditional Treatment

Defined as “the use of electronic information and communications technology to provide and support health care when distance separates the participants,<sup>1</sup>” telemedicine includes communication media such as the telephone, interactive video conferencing, store-and-forward image techniques, remote medical record access, and remote patient monitoring. The technology has grown by leaps and bounds during the last decade, according to Dr. Haselkorn, who will be reporting on this topic at the 20th Annual Conference of the Consortium of Multiple Sclerosis Centers (CMSC) in Scottsdale, Arizona. “This growth has been fueled by various factors, including a general trend toward more patient-oriented health care,” she explained.

“Studies support the use of

telemedicine in other conditions with symptoms similar to those of MS—such as decubitus ulcers, depression, and mobility impairments,” said Dr. Haselkorn. “Translating existing work to MS management may have numerous clinical and financial benefits.”

### Ongoing Study in MS Patients

Also presenting during the CMSC symposium will be Deborah Miller, PhD, of the Mellen Center for MS at The Cleveland Clinic. Dr. Miller and colleagues are currently investigating a program called Mellen Center Care Online. They hope to learn whether MS patients find it helpful to use telemed-

“Telemedicine can extend traditional outpatient services for [MS] patients,” said Dr. Haselkorn.

icine, particularly through the Internet, in the management of their disease.

The study is one of the first of its kind in patients with a neurologic disorder and will involve 224 patients using the clinic’s telehealth system. “Both the control group and the experimental group will receive computers equipped with a messaging capability, so that they can correspond with their health care providers at any time,” Dr. Miller explained.

Patients will be asked to monitor their disease with the MS Quality of

Life Inventory at least once every three months. In addition, the experimental group will also be directed to educational Internet sites for more information on MS. They will also be able to correspond with their clinician before scheduled appointments and can relay any questions and concerns they would like addressed during the office visit. At the end of the study, all patients will be compared on their own assessment of their well-being, a clinical assessment of their MS status, and a measure of self-efficacy that determines how in control they feel with regard to their disease.

Dr. Miller will be reporting preliminary data at the CMSC conference. “So far, we’ve had very good compliance. Patients are also responding with positive feedback; all communications are saved, and patients like having a record of their communications. They also enjoy knowing their questions will be answered directly by their clinician,” she related.

### Potential Roadblocks

“One of the biggest barriers to telemedicine implementation in private practice is cost,” said Dr. Haselkorn. Although most insurance providers have historically provided limited coverage for services that do not include traditional face-to-face contact between a patient and practitioner, Dr. Haselkorn reported that this is changing.

“The MS population possesses several characteristics that might increase their utilization of a telemedicine system,” explained Dr. Miller.

Legal issues may also prevent telemedicine from being adopted in some areas. “Although many programs span several states, the Federation of State Medical Boards prohibits clinicians from practicing medicine across state lines. As a result, many programs must operate in state, unless health practitioners are willing to become licensed in multiple states,” Dr. Haselkorn said. However, some public health organizations such as the Veterans Health Administration (VHA) are not bound by these limitations. “Under federal law, a VHA practitioner may practice in any state within the VHA system, as long as he or she holds a license in one state. This includes teleconferencing and telemedicine,” said Dr. Haselkorn.

Security and privacy issues may make some patients hesitant to communicate personal information electronically. “This fear can be minimized through the use of safeguards that protect information against being disclosed without prior authorization and limit access to authorized users,” explained Dr. Haselkorn. “We typically take advantage of secure communication modes such as secure socket layer or private key encryption when sharing medical data.”

Dr. Miller added that the telemedicine program at the Mellen Center uses bank-level security. “We don’t send messages with clinical information to a patient’s e-mail address. We e-mail a request that he or she log onto the password-protected,

secure site to retrieve correspondence from their clinician,” she stated.

### Bridging the Gap

“The MS population possesses several characteristics that might increase the utilization of a telemedicine system,” explained Dr. Miller. “For instance, these patients are typically younger and have achieved a higher level of education than the general population.”

Telemedicine may help foster better communication between patient and clinician. “Given the number of emerging new medications and the many sequelae of MS, providers are feeling the need for guidance in the ever-changing management of the disease,” Dr. Haselkorn said. “Our findings suggest that this technology promises to improve access, enhance management of MS and its symptoms, and positively impact the lives of patients.” **MSX**

—**Krista Binetti**

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## Managing Gait Disorders in MS

At some point during the course of their disease, many people with multiple sclerosis (MS) develop gait disorders. For some patients, difficulty with walking may be the first noticeable MS symptom.

Several factors, alone or in combination, may contribute to ambulation difficulties in MS, including muscle weakness, coordination loss, spasticity, or numbness. Early recognition and treatment of these disorders can not only improve function and quality of life but also may prevent future problems, such as joint and back pain, which could develop as a result of walking difficulty, according to physiatrist Francois Bethoux, MD, Director of Rehabilitation Services at the Mellen Center for MS at The Cleveland Clinic in Ohio.

“As with other MS-related symptoms, early intervention is key. If patients can be seen by a rehabilitation specialist, a clinical specialist, a physical therapist, or an occupational therapist as soon as problems arise, there is a better chance of addressing a gait disorder appropriately and avoiding a cascade of consequences,” said Dr. Bethoux. “If people walk abnormally for a few years, they can get stuck in that pattern.” Dr. Bethoux and colleagues will be presenting the symposium “Assessment and Management of Disorders of Ambulation in MS” at the 20th Annual Meeting of the CMSC in Scottsdale, Arizona.

### Combining Therapies

Treatment of gait disorders, which may be characterized by ankle contracture, difficulty bending the leg, or leg “dragging,” among other symptoms, typically involves a combination regimen. For best results, medical treatments should be combined with physical rehabilitation. For example, to treat the consequences of spasticity, medications such as baclofen, tizanidine, or botulinum toxin injections (Botox®, Myobloc®) may be combined with intensive physical

therapy (PT), and, as appropriate, an ankle-foot orthosis (AFO) or other bracing device. Once the medications have taken effect to loosen muscles, the physical therapist focuses on aggressive stretching to improve range of motion, muscle-strengthening exercises, and gait/balance training. “Drug therapy allows the patient to participate in physical rehabilitation, which in turn allows for better functional results,” explained Dr. Bethoux.

“Physical therapy can make substantial improvements in an MS patient’s walking ability,” said Matt Sutliff, PT, a Cleveland Clinic therapist who will co-present with Dr. Bethoux. “We provide patients with a customized program which should ideally be provided three times a week.” Patients are also advised to perform exercises at home every day, even after PT sessions have ceased.

PT may also be useful for patients with spasticity who have undergone implantation of a baclofen pump. “If a patient with long-standing gait abnormalities is just given a pump and sent on his or her way, benefit is limited,” stressed Mr. Sutliff. “Physical rehabilitation allows patients to loosen muscles that have become tight while strengthening muscles that have become weak over the years. In time, quality of walking usually improves.”

### Developing Advanced Orthoses

One promising approach to improving gait disorders involves the use of advanced orthoses, such as AFOs, KAFOs (which include the knee), and hip flexion assist orthoses. These bracing devices help compensate for leg weakness by holding limbs in position. In some cases, new-style orthoses, made of lightweight carbon,

are designed with an “active bracing” component that not only addresses weakness but also “returns energy,” according to Jon Naft, CPO, a prosthetist/orthotist with Geauga Rehabilitation Engineering in Cleveland.

“People with MS who have difficulty walking become fatigued as the day goes on. If we return energy during the gait cycle, they will be less likely to feel tired throughout the day,” explained Mr. Naft, who will also present at the symposium.

Mr. Naft’s talk will focus on how to spot gait disorders, new techniques in managing ambulation problems, and the criteria for prescribing appropriate orthoses. Mr. Sutliff will also present results of a pilot study conducted through funding from the National MS Society in which hip flexion assist orthoses were used in 21 ambulatory MS patients in an effort to improve gait performance.

“Often, clinicians are aware that orthoses are needed, but they aren’t sure which one may be the most appropriate. This presentation will help clarify the decision-making process that occurs in choosing the proper device,” said Mr. Naft. “In orthotics, as in other medical disciplines, what’s best for Patient A might not be best for Patient B.”

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—Bonnie Darves

### Osteoporosis and MS

Often called a “silent disease” due to lack of symptoms, osteoporosis may pose a significant risk to older individuals as well as those with chronic illnesses such as multiple sclerosis (MS). According to Bianca Weinstock-Guttman, MD, Associate Professor of

Neurology at the State University of New York at Buffalo, emerging data suggest a significantly increased prevalence of osteoporosis in men and women with MS compared with those without the disease.

### A Population at Risk

The increased osteoporosis risk in MS patients is most likely due to a combination of factors. “The overall result of the chronic inflammatory MS process, the immobilization caused by physical disability, a tendency for abnormal vitamin D status, and, possibly, glucocorticoids used for the treatment of relapses may all play a role,” said Dr. Weinstock-Guttman, who will be co-presenting on the topic at the upcoming CMSC conference in May.

In one study of 54 men and women with MS,<sup>1</sup> 22% experienced fractures unrelated to major trauma, in contrast to 2% of controls. Over the course of a two-year follow-up, MS patients lost substantially more bone in the femoral neck. “Notably, bone loss in the spine occurred more quickly in patients with low levels of 25-hydroxyvitamin D,” said Dr. Weinstock-Guttman.

### Making a Diagnosis

“In osteoporosis, the amount of bone is decreased, the strength of trabecular bone is reduced, cortical bone becomes thin and bones are susceptible to fracture. A bone mineral density (BMD) of 2.5 standard deviations below the average peak bone mass of a 20-year-old adult of the same gender and race is indicative of osteoporosis,” Dr. Weinstock-Guttman said.

Patients with osteoporosis may present with no symptoms. “Often, people are unaware that they are ex-

periencing bone loss until they fracture a bone, usually in the back, hip, or wrist,” explained Dr. Weinstock-Guttman. “Other signs of osteoporosis may include back pain, loss of height, or curvature of the back.

“The best technique currently available to determine BMD is dual energy x-ray absorptiometry. Measuring bone mass, typically in the spine and the hip, can give a clinician clues about bone density in the rest of the body,” related Dr. Weinstock-Guttman. BMD testing can also predict a patient’s risk for future fracture. “Studies have shown that the lower the BMD, the higher the risk of future fracture, whether or not a prevalent fracture is present,”<sup>2</sup> she said.

### Prevention and Treatment

“Since MS adversely affects bone homeostasis, getting a patient’s disease under control is an important first step toward decreasing his or her risk for bone loss,” added Dr. Weinstock-Guttman. Treatment with disease-modifying agents may indirectly benefit MS patients with osteoporosis by decreasing disease activity.

“In addition, in vitro experiments have shown that treatment with interferon beta at levels similar to those found in MS patients’ serum during therapy dramatically decreases the differentiation of circulating osteoclast precursors to mature osteoclasts,” explained Dr. Weinstock-Guttman. In addition, MS patients tend to have lower levels of osteocalcin, a bone formation marker.<sup>3</sup>

Before beginning treatment for osteoporosis in MS, it is important to identify secondary factors that could be associated with increased risk for bone loss, such as hormone deficiencies, smoking, or certain medications,

stressed Dr. Weinstock-Guttman. “In general, treatment of osteoporosis in MS patients is the same as it is in the general population,” she said. Therapy often includes medications such as the bisphosphonates, calcitonin, and recombinant human parathyroid hormone supplementation. Although hormone replacement therapy has been shown to slow bone loss in postmenopausal women, it is used only for severe postmenopausal symptoms due to the increased risk for stroke and myocardial infarction.

“We also regularly screen for low vitamin D levels, which are common in MS patients,” said Dr. Weinstock-Guttman. Patients with levels less than 20 ng/ml are given 50,000 units of vitamin D weekly for three months; after that, they are maintained on 800 units per day, she explained. Target levels of Vitamin D are between 35 and 50 ng/ml.

One important treatment for patients with osteoporosis is physical therapy, said Dr. Weinstock-Guttman. “Bones respond to exercise by becoming stronger. A lack of physical exercise contributes to low bone mass.” After a baseline assessment of a patient’s fitness level and a determination of any risk factors or comorbid disease that could prohibit exercises, an appropriate program can be implemented. Exercises should include both aerobic activity and weight training for the upper and lower extremities and should ideally be performed for 30 to 45 minutes, three to five times per week.

“Walking is an excellent choice of exercise because it strengthens the back, hips, and legs through natural weight-bearing activity,” said Dr. Weinstock-Guttman. Light weights can

be lifted to build arm muscles and strengthen bone. If an individual has access to weight equipment for the legs, a weighted hip machine, leg press, or quadriceps bench can stimulate bone deposition in the lower body.

“A better understanding of the causes associated with decreased bone mass in MS patients will help in defining optimal, gender-appropriate therapeutic interventions,” Dr. Weinstock-Guttman concluded. “Increased awareness of the heightened risk for osteoporosis in this population and regular BMD screening of all MS patients over 40 is warranted.”

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—Krista Binetti

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practitioner Maria Milazzo, MS, CPNP, coordinator of the National Pediatric Center at Stony Brook University Hospital and camp staff member. “Many children with MS don’t share their symptoms or feelings with their parents for fear of worrying them. But when you put these same kids with others who can relate on both a physical and emotional level, they open up and talk about things they’ve never expressed before. Giving kids a chance to meet others who are having the same experiences is an incredibly powerful driving force of the camp,” she said.

### GLOWING REVIEWS

Numerous anecdotes from past camps show the benefits of the experience, Ms. Milazzo commented. “One of last year’s campers had stopped taking her medicine and couldn’t be persuaded to start up again by her parents or clinicians. After two days at camp, she was back on her meds because she



saw the compliance of the other campers and heard them saying, ‘I hate it, too, but I do it anyway.’”

On Sunday evening, everyone gathers for a formal closing session—a time of performance and self-expression. Poems, essays, and skits are written and presented, and all of the campers are asked to dedicate the weekend to a special person in their life.

Although the attendees represent a wide range of cultural backgrounds and frequently have little in common other than MS, they form quick and strong friendships and are often sad to leave. “Last year, they asked if they could stay

up all night on the last night of camp. One girl told us that she didn’t want to miss a minute of the memory,” Ms. Milazzo said.

The response from parents has been “extremely positive,” and many have written to express their thanks. “Parents tell us that they feel better because their children learn that they aren’t so different from others,” Ms. Milazzo said. “In turn, we feel that we’re empowering not only the kids but also their families.”

### GROWING EACH YEAR

The camp is generally staffed by eight to 10 adults, including recreational therapists from Access 2 Adventure, a nonprofit organization dedicated to improving the quality of life for people with physical disabilities. Beginning this year, volunteers from the Rhode Island chapter of the National Pediatric MS Center will also help with day-to-day activities; a physician is on call the entire weekend.

Enrollment increased from eight to 20 participants between 2004 and 2005. Two separate camps with 15 to 20 participants each will be offered this summer, and further expansion is anticipated in the future.

Admission is free for those who are eligible. Funding comes from private donations and pharmaceutical companies; travel costs are covered by the National MS Society.

For more information, contact Maria Milazzo at (631) 444-7802 or [mcmilazzo@notes.cc.sunysb.edu](mailto:mcmilazzo@notes.cc.sunysb.edu).

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—Kathleen A. Wildasin





## LITERATURE MONITOR/ NEWS ROUNDUP

### MONONUCLEOSIS LINKED TO MS RISK

Infectious mononucleosis (IM) in teens and young adults increases future risk for MS, according to researchers from Harvard University. Findings from their meta-analysis appear to confirm the long-held suspicion of a link between MS and the Epstein-Barr virus (EBV).

Included in their systematic review were 11 case-control studies and three cohort studies. For each study, relative risk (RR) of MS was independently extracted. An RR of 1.0 was assumed for the two studies that had no RR or confidence interval data. With no significant heterogeneity among the 14 study results, the combined RR was 2.3 ( $P < 10^{-8}$ ). Stratified results showed a slightly higher combined RR for cohort studies than for case-control studies. Further analysis showed that no single study was overly influential.

Based on their findings and that of other investigations, Thacker et al surmised that persons who are not EBV infected may have virtually no risk for MS, persons who were infected in early childhood have intermediate risk, and persons first infected in adolescence or later in life

have the highest risk. The authors reported that, based on the replication of the positive association between IM and MS in many studies, the association is unlikely to be a product of chance. "Both IM and MS occur in young adults, both follow a latitude gradient, and both are rare in populations where infections occur at an early age," they noted.

"Whereas there is no doubt that EBV is at best only one component in the complex pathway of events that cause MS, it could prove to be one of the components that is more vulnerable to intervention," the authors concluded. They added that if a suitable vaccine were developed and tested appropriately, immunization may one day prevent individuals from developing MS.

Thacker EL, Mirzaei F, Ascherio A. Infectious mononucleosis and risk for multiple sclerosis: a meta-analysis. *Ann Neurol*. 2006;59:499-503.

### NEW ANTIBODY TEST MAY PREDICT MS CONVERSION IN ISOLATED SYNDROMES

A new method of detecting oligoclonal immunoglobulin G bands (OCGB), when used in conjunction with MRI, is highly sensitive in predicting conversion of clinically isolated syndrome (CIS) to clinically definite MS (CDMS), according to a recent study in *Neurology*. Since many cases of CIS are self-limiting and early treatment of MS has proven to be beneficial, "an accurate and reliable prognostic marker for conversion to CDMS would be relevant," the authors contended.

Included were 52 MS clinic-referred patients with CIS, defined

as clinical onset of neurologic symptoms suggestive of central nervous system demyelination affecting the optic nerve, brainstem, cerebellum, or spinal cord in any combination that is not attributable to other disease. Patients' ages ranged from 14 to 55 (mean age: 31). Paired serum and cerebrospinal fluid samples for OCGB detection were obtained in the first month after the development of clinical symptoms, brain MRI was performed during the first demyelinating event, and spinal MRI was performed if the CIS was a spinal cord syndrome. Patients were followed for as long as six years and were assessed at regular intervals.

Of the 33 patients with OCGB, 32 converted to CDMS during follow-up, as did only three of the 19 patients who lacked OCGB (sensitivity, 91.4%; specificity, 94.1%). Twenty-six of 28 patients who fulfilled current MRI Barkhof criteria converted to CDMS during follow-up; nine of 24 patients who did not fulfill current MRI criteria converted to CDMS (sensitivity, 74.2%; specificity, 88.2%). Sensitivity and specificity for conversion to CDMS were 97.1% and 88.2, respectively, among patients who had presence of OCGB and fulfilled current MRI criteria.

The authors concluded that OCGB provides "a useful tool for predicting conversion to MS in patients with CIS." They proposed that their study results "be corroborated with studies performed in multiple laboratories."

Masjuan J, Álvarez-Cermeño JC, García-Barragán N, et al. Clinically isolated syndromes. A new oligoclonal band test accurately predicts conversion to MS. *Neurology*. 2006;66:576-578.

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## REGULAR TREADMILL WALKING IMPROVES EXERCISE ENDURANCE IN MS

Aerobic treadmill training may safely increase MS patients' endurance without worsening symptoms of fatigue, suggested a pilot study conducted by British researchers. Many clinicians have traditionally advised MS patients who experience fatigue to limit their physical activity. However, "there is an increasing recognition that regular participation in aerobic exercise may benefit [them]," the investigators noted.

Sixteen participants ages 30 to 65 completed the single center, randomized, crossover trial. At baseline, week 7, and week 12, each person was asked to walk 10 meters in less than 60 seconds (with use of a walking aid, if necessary, but without hands-on support), and to walk on a treadmill for two minutes (with or without hands-on support). These tests were used to assess walking speed and endurance, respectively.

For three sessions per week for four weeks, the immediate training group and the delayed training group alternately received supervised training on treadmill walking. During the study period, walking duration was increased as tolerated to a maximum of 30 minutes and intensity increased to 55% to 85% of age-predicted maximum heart rate. A maximum of three rest periods were allowed.

At baseline, the immediate-training group was slower on the 10-meter timed walk and covered significantly less distance during the two-minute treadmill walk than did the delayed-training group. At week 7, both groups had significantly increased two-minute walk distances. Although both groups experienced decreases in the 10-meter walk time, the decrease was significant only in the immediate-training group ( $P < 0.05$ ). There were no significant changes in fatigue scores. At week 12, test results returned to near baseline scores, suggesting

that "longer interventions or an ongoing maintenance programme might be more effective than short interventions," the authors said.

The researchers concluded that larger trials are needed to determine if regular treadmill exercise can help alleviate other limitations to physical activity.

van den Berg M, Dawes H, Wade DT, et al. Treadmill training for individuals with multiple sclerosis: a pilot randomised trial. *J Neurol Neurosurg Psychiatry*. 2006;77:531-533.

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## Multiple Sclerosis Certified Specialists

In February 2006, candidates took part in a sitting of the examination for Multiple Sclerosis Certified Specialists developed by the Clinical Care Committee and the Professional Testing Corporation. The successful candidates are now eligible to use the registered designation of Multiple Sclerosis Certified Specialist (MSCS). The next sitting of the MSCS exam will be from August 5 to August 19, 2006. For more information, visit [www.ptcny.com/clients/MSCS](http://www.ptcny.com/clients/MSCS).

### LIST OF PASSING CANDIDATES

Joyce A. Binford	Sara R. Hinderer	Cathleen F. Shamy
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Sangsawang Clements	Dorothy Leung (C)	Eli Skromne
Robyn Clough	Melanie L. Morris-Katin	Linda C. Ward
Shellie B. Foley	Daniel Ontaneda	
Elissa C. Held-Bradford	Laura Ordonez	

All USA except: (C), Canada

# CONTINUING EDUCATION CONFERENCE CALENDAR

## September 2-5, 2006

10th Congress of the European Federation of Neurological Societies. Location: Glasgow, UK. Contact: EFNS Head Office, Breite Gasse 4-8, A-1070 Vienna, Austria; +43 1 889 05 03; fax: +43 1 889 05 03 13; e-mail: headoffice@efns.org; Web site: [www.kenes.com/efns2006](http://www.kenes.com/efns2006).

## September 27-30, 2006

22nd Congress of the European Committee for Treatment and Research in Multiple Sclerosis. Location: Madrid. Contact: AKM AG, Clarastrasse 57, PO Box CH-4005, Basel, Switzerland; +41 61 686 77 77; fax: +41 61 686 77 88; e-mail: [info@akm.ch](mailto:info@akm.ch); Web site: [www.akm.ch/ectrims2006](http://www.akm.ch/ectrims2006).

## October 8-11, 2006

131st Annual Meeting of the American Neurological Association.

Location: Chicago. Contact: ANA, 5841 Cedar Lake Road, Suite 204, Minneapolis, MN 55416; (952) 545-6284; fax: (952) 545-6073; e-mail: [julieratzloff@llmsi.com](mailto:julieratzloff@llmsi.com); Web site: [www.aneuroa.org](http://www.aneuroa.org).

## October 14-18, 2006

36th Annual Meeting of the Society for Neuroscience. Location: Atlanta. Contact: Society for Neuroscience, 1121 14th Street, NW, Suite 1010, Washington, DC 20005; (202) 962-4000; fax: (202) 962-4941; e-mail: [info@sfn.org](mailto:info@sfn.org); Web site: [www.sfn.org](http://www.sfn.org).

## November 2-4, 2006

MS Trust 10th Annual Conference. Location: Bournemouth, UK. Contact: MS Trust, Spirella Building, Bridge Road, Letchworth Garden City, Hertfordshire SG6 4ET; +44 14 6247 6700; e-mail: [info@mstrust.org.uk](mailto:info@mstrust.org.uk); Web site: [www.mstrust.org.uk](http://www.mstrust.org.uk).

## CMSC 2006 ANNUAL MEETING



The 2006 Annual Meeting of the Consortium of Multiple Sclerosis Centers will take place May 31 to June 3 at the Westin Kierland Resort in Scottsdale, Arizona. The theme is "Celebrating 20 Years of Excellence in MS Care and Research." Presentations will pertain to timely issues involving MS patient care and basic and clinical research, as well as those that reflect collaboration between specialties. Go to [www.ms-care.org](http://www.ms-care.org) for additional information, or 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](mailto:tina.trott@mscare.org).

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