Impairment of mobility is certainly one of the clinical signs of multiple sclerosis (MS) that is most distressing to patients, who find the routines of their daily life compromised. Some of the MS symptoms that are most likely to interfere with a patient’s mobility are spasticity, weakness, fatigue, impaired balance, reduced sensation, ataxia, pain, and vision problems. Any combination of these symptoms, along with environmental elements and other factors, can interfere with the ability to get in and out of bed, use the bathroom, climb stairs, operate a car, and walk even short distances. Additionally, the MS patient is at increased risk for falls and injuries as a result of limb weakness and gait disorders.

Aside from the physical limitations posed by decreased mobility, the psychological impact of deteriorating function can further damage patients’ ability to manage their disease. Gait disorders are among the most common MS complaints, and can be ameliorated through a number of effective interventions that can improve patients’ quality of life.

Interventions for Gait Disorders
A number of assistive devices, include canes, crutches, standard and wheeled walkers, wheelchairs, and even powered wheelchairs and scooters, are available for patients with severe gait disturbances and impaired mobility. For patients who still retain enough strength to walk on their own, a range of ankle-foot orthoses (AFOs) are available to provide support where it is needed.

New Orthoses
AFOs are most effective in reducing foot drop or drag resulting from lower limb weakness or fatigue. These lightweight orthoses come in a number of sizes and designs that improve functional ambulation and decrease the risk of falls. New carbon composite materials have increased the options in design, which can be customized to reduce the numbness or spasticity some orthoses can produce. A number of makers produce AFOs, which require a prescription to order and some training to utilize properly. Nurses need to be aware of the many types of devices available and the variations in how they are used to help patients adjust effectively.
In addition to devices for the ankle alone, knee-ankle-foot orthoses (KAFOs), and hip-flexor-assist orthoses (HFAO s) can provide support further up the leg to increase stability and correct gait problems originating at the knee or hip. While KAFOs have been available for many years, they have generally been considered bulky. Additionally, they have been heavy to wear, compounding the problems of muscle weakness that are already present. The newer KAFOs are made from the same lightweight composites as AFOs, while still providing additional knee stability.

The newest development in orthotic technology is the HFAO, which addresses an area of weakness that was previously untreatable—the hip flexor joint. Unlike other AFOs, the HFAO is not a brace, but rather a system of three belts that work together to overcome the effects of gravity on a weak limb. Many patients with hip flexor weakness will also have other problems, such as foot drag or drop. These patients may already be using an AFO, and the two devices can work together to significantly overcome a number of difficulties in ambulation.

A physician can do a basic evaluation to identify the device that is most suitable for the patient, and it is then the job of the nurse and the physical therapist (PT) to help the patient get full use from the assistive aid that is chosen.

Other Technology to Assist Gait

• Functional Electrical Stimulation (FES): While not a new technology, FES has been updated with wireless neuromuscular stimulators that can also collect data to assess patients’ movements.

• Botox: Injected into the quads or adductor muscles, botulinum toxin (Botox) can relieve spasticity. The injections must be repeated every 3-6 months for continued effectiveness.
How to Recognize Treatable Impairment

Gait impairment can be measured through a subjective assessment by patients, who often report difficulty walking during simple activities, feeling “wobbly,” and fatiguing easily. They also describe reduced endurance for otherwise normal trips to the mall, grocery store, and other places, causing them to change their daily routines. At office visits, the physician and nurse may each observe basic gait disorders—including shuffling; flexed, wide-based foot drag; ataxia; poor turning ability; and the patient’s need to steady him- or herself on walls or furniture—as signs of more complicated gait disturbances warranting a consult with a qualified MSPT.

Parameters of ambulatory ability such as balance can be measured by standard tests such as the Berg Balance Scale and the Tinetti Gait and Balance Scale. Speed can be measured by tests such as the Timed 25-foot-walk (T25FW), and the Timed Up-and-Go (TUG) tests. While these tests are certainly useful, the clinician’s observations of patients’ ability to control their gait, their general safety, and their confidence in walking will figure most prominently in determining the timing and type of interventions ordered.

Gait Training 101

Although it is the PT’s role to train MS patients in the use of ambulatory devices, the nurse can play a pivotal role in compliance and adjustment to the aids prescribed. According to Pat Provance, PT, an MS certified specialist (MSCS), this can be an emotional time for the patient. “When I do an assessment, people come in not using any tool or using the wrong tool, or the right tool the wrong way,” she said. “We’re going to have walking 101 class. We try them with every tool and I have them walk so we can assess what is going to work best for them at the time.”

Weakness and spasticity can increase with disease progression, and the nurse as well as the PT can observe a patient’s continued use of a device and inquire about new difficulties that may develop. If MS does progress, patients may then need to go on to another intervention. “Foot drop may get worse and you have to look at an AFO,” explained Ms. Provance. “Everybody is different. You can’t generalize with this population at all—it’s a matter of problem-solving in real time. We never discharge patients, we just watch them over time.”

The key to effective management of gait disorders is perseverance. For most patients, the hardest part is overcoming their resistance to the idea of an assistive device. Some feel it sends a signal to others that their disease is progressing, while others find their appearance less attractive with an AFO or other aid. The most important thing a nurse or PT can do, suggested Ms. Provance, is to encourage patients to stay with their aids by showing how it will improve their safety and independence, and will help them stay active in their daily lives. “Training does not take a lot of time,” she added.

Overall, it is important to encourage compliance in MS patients, as the more active they remain, the better able they will be to manage their disease. Orthoses and other interventions are the key components in helping patients maintain their regular routines by retaining mobility. It’s especially important for patients to have the right intervention at the right time. A PT consult should be done at the earliest sign of gait impairment, before patients experience falls that can destroy confidence. Once they begin to limit their activities, muscle deconditioning takes place, which makes it much harder to get the patients back on their feet.
Gait impairments can present in a number of ways, with patients complaining of weakness or spasticity in any of the muscles of the foot, leg, or hip, as well as ataxia, numbness, pain, sensory loss, and poor balance. Unilateral hip flexor weakness is very common in progressive multiple sclerosis (MS) and is often a key contributing factor to gait disorders that can severely impair walking. As most orthoses prescribed to improve gait and mobility provide support for the lower legs and feet, impairment resulting at least partially from hip flexor weakness is not likely to improve significantly.

In a pilot study conducted at the Cleveland Clinic, researchers observed the impact of an orthosis specifically designed by Geauga Rehabilitation Engineering to offer hip flexor support, called a Hip Flexor Assist Orthosis (HFAO). Twenty-one of 24 patients initially recruited actually completed the study. Enrolled patients had been diagnosed with MS and demonstrated gait impairment measured by a score of 3/5 or lower on manual muscle testing of the hip flexor group in at least one lower extremity. Patients could not be actively receiving physical therapy at the time of entry. Patients were excluded if they had severe chronic back pain (a score of 4/10 or above on the numeric pain rating scale), skin breakdown, surgical incisions in the abdomen or knees, severe cognitive deficits that prevented informed consent, or the physical inability to put on or take off the device unassisted.

Many patients with gait disorders will be prescribed an ankle-foot orthoses (AFO) to provide support at the lowest point of the extremity, but due to weakness at the hip, they will continue to experience foot drag, which creates great fatigue and soreness. “Common compensatory movements involve hip hiking and circumduction—using the adductors to swing the upper leg—which increases the stress on the hip musculature,” said Matthew H. Sutliff, PT, one of the lead authors of the study. For these reasons, patients with hip flexor weakness tend to become quickly dissatisfied with standard AFOs and are likely to refrain from many kinds of ambulatory activities.

Continued on page 9
IOMSN TURNS 10!

IOMSN is celebrating its 10th anniversary this year. From humble beginnings at the nursing roundtable in Calgary, Alberta in 1997, we have grown to a formidable organization with close to 1,000 members in over 25 countries. We continue to care, educate, inspire, and innovate.

10 Years of Clinical Excellence, Education, and Research

IOMSN was established to ensure that a specialized branch of nursing in MS will continue to grow and flourish by establishing standards of nursing care in MS, supporting nursing research, educating the health care community, and disseminating this knowledge throughout the world. The ultimate goal of the IOMSN is to improve the lives of persons affected with MS. We have an impressive track record in the development of clinical tools for practitioners, education programs to inform professionals and patients alike, and in research to advance nursing knowledge. Credentialing has been the ultimate achievement to define the domains and knowledge of MS nurses and to capture global commonalities within the field. We continue to keep abreast of developments in the world of MS and to ensure that our members have the most up-to-date knowledge and skills.

10 Years of Colleagueship and Support

MS nursing is the hardest job you’ll ever love. Perhaps the most significant benefit of membership in IOMSN, these past 10 years, has been the friends and colleagues we have developed along the way. We have a remarkable network of nurses who are just an email away and ready to share expertise and information or comfort in difficult times. As we enter our next decade, our goal is to continue to reach out to our global members and provide mentorship, advocacy, and support to all.

10 Years of Fun…and the Fun Continues!

The IOMSN 10th anniversary will be celebrated at the CMSC meeting in Washington, DC in May. We have a special program planned with wonderful food, entertainment, and memorabilia...not to mention a champagne toast! Please plan to register for the dinner and join us as we celebrate a special event and look forward to the next 10 years of learning, sharing, and colleagueship.

Diane Lowden
President, IOMSN

We mark this 10th anniversary of the IOMSN by offering our thanks to the dedicated neurologists and nurses who developed the many important studies that have improved our understanding and management of multiple sclerosis (MS). And we especially thank the many patients who participated in the spirit of helping to make the lives of other MS patients so much better.

Teva Neuroscience is also proud to say that all of its Shared Solutions Nurses are certified in MS Nursing.

Newsletter Sponsor Teva Neuroscience is dedicated to the MS nurse community and has supported scholarships for nurses, educational programs such as monographs, CE programs, IOMSN dinners, the MS Exchange, and MS Nurse Counseling Points™.

Teva Neuroscience is also proud to say that all of its Shared Solutions Nurses are certified in MS Nursing.
A DECADE OF EXCELLENCE:
THE INTERNATIONAL ORGANIZATION
OF MS NURSES

1997  IOMSN established as a non-profit professional organization
1998-2002  Global affiliations established with Australia, the United Kingdom, Ireland, Finland, Latin America, Denmark, Holland, and Italy
2000  The Multiple Sclerosis Credentialing Board established with international representation
2002  The first MSCN examination offered in MS nursing (109 certificates offered)
And in 2007  We celebrate our top 10 years of growth and networking
  • Over 1,000 members worldwide
  • Over 450 MS certified nurses

Over the past decade, the IOMSN has developed monographs, pamphlets, and multimedia educational vehicles to help nurses offer the highest level of informed care to their patients with MS. Our organization has provided mentorships and preceptorships to help our members further their education and knowledge of this devastating disease. It has been our objective to contribute to a culture of caring throughout the world, and while we have come a long way, we have so much more to learn and do. We hope you will join us as we fight the challenges of MS.

June Halper
Founding Director, IOMSN

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, contact the organization at:
IOMSN c/o MS Center at Holy Name Hospital
718 Teaneck Road, Teaneck, NJ 07666
(201) 837-0727
www.iomsn.org

DEBATE OVER MS PREVALENCE

The National MS Society (NMSS) has raised concerns over a newly published study which they feel underestimates the prevalence (number of people living with the disease) of MS in the US.

The study reported in the January 30, 2007 issue of Neurology by the National Institute of Neurology Disorders and Stroke (NINDS) division of the National Institutes of Health (NIH) in Bethesda, MD, indicates that multiple sclerosis is one of 12 diseases that are on the rise in the US. The researchers conducted an assessment of studies published between 1990 and 2005 to estimate the prevalence of MS. They calculated the prevalence rate at nearly 1 in 1,000 people in the US during that period. The total number of patients living with MS was estimated at 266,000. The investigators concluded that this rate is nearly 50% higher than a similar calculation made in a literature review conducted in 1982. The incidence of newly diagnosed cases was reported at 4.2 per 100,000 population.

A statement released by the NMSS points out that this rate is actually lower than that reported in another NIH study published in the Annals of Neurology in 1982, from which a prevalence of 135 cases per 100,000 population could be extracted. Using this prevalence rate, the NMSS estimates that the number of people with MS would be closer to 400,000. They further suggest that the 300,000 people self-reporting as MS patients in their database already represents a number higher than the 266,000 estimated in the current NIH study, and that many more MS patients have not signed onto their database.

These statistics are troubling to MS health professionals, who are working to meet the needs of a growing population, making it all the more important that the prevalence and incidence rates be accurately reported and monitored.

Potential Marker for MS Relapse Identified

An article published in the January issue of Nature Immunology identified osteopontin, a protein found to
be abundant in the brains of MS patients, as a potential marker for a relapse. While normal controls do not exhibit this cytokine, spiking levels of osteopontin have been noted in MS patients just prior to and during a relapse.

Researchers at Stanford University reported on their findings from a study in a mouse model of autoimmune encephalomyelitis (EAE), the mouse equivalent of MS, in which the presence of osteopontin triggered relapses and a general worsening of the disease. This study specifically looked at the mechanism of the protein in the brains of EAE-infected mice and found that osteopontin encourages survival and growth of autoreactive rogue T cells, triggering relapse.

These findings suggest that blocking the production of osteopontin has potential in preventing future relapses of MS. Clinical trials investigating the suppressive effects of monoclonal antibodies on osteopontin and MS outcomes are expected to start by 2009.

—Nature Immunology, Vol 8 (1), Jan. 2007

A Leader in MS Research Dies

It is with great sadness that the IOMSN acknowledges the passing of W. Ian McDonald, MB, ChB, PhD, the Emeritus Professor of Clinical Neurology at the Institute of Neurology at University College in London, who first showed that damage to the myelin coating of nerve fibers could result in blockage of neuronal messages. Professor McDonald also established the first-ever magnetic resonance imaging (MRI) facility dedicated solely to MS research and treatment.

During his lengthy career, Professor McDonald served as President of the World Congress of Neurology, the European Neurological Society, and the Associ-
Original MS Nursing Certificates Expire This June

The 109 nurses who wrote the first Multiple Sclerosis Certified Nurse (MSCN) exam in June of 2002 will need to reapply for certification in June of this year as their certificates expire. The MSCN certificate is recognized for 5 years from the testing date, and expires on the 30th day of the month in which the exam was written.

Recertification can be achieved in one of three ways:
1) By writing and passing the certification exam;
2) By submitting a record of 75 MS learning activity hours completed over the 5-year certification term; or
3) By submitting proof of 50 MS learning activity hours and 1,000 MS practice hours over the 5-year certification term.

Failure to reapply for certification will result in a lapse of MSCN credentials, after which a nurse has to requalify as an original applicant and pass the certification exam in order to be recertified.

GUIDELINES FOR RECERTIFICATION

The recertification guidelines for 2002 candidates were mailed in January of 2007. Anyone who did not receive their recertification application can get one online at http://www.msnicb.org/Recertification.htm.

The next testing dates will be May 30, 2007 in the Washington, DC area, and June 2, 2007, nationwide. The application deadline for both testing dates is April 15, 2007.

MULTIPLE SCLEROSIS CERTIFIED NURSES EXAM

The following list of candidates from around the world became MS certified nurses after passing the exam given November 4, 2006:

Grace Olamiji Anjorin (E)  Marie A. Hansen  Amanda J. Rowland
Terry A. Boiko  Elizabeth J. Hartley  Sarale E. Russ
Janet M. Braman  Kimberly A. Havins (E)  Andrew Russell (E)
Wanda E. Burton  Donna Howard  Uvienome L. Sakor
Gail E. Carpenter  Elizabeth A. Kappel (C)  Stephanie Schaefer
Ann Chiovetti (C)  Barbara Kennette  Darla S. Shirk
Nancy C. Clayton-Reitman  Marilyn E. Klein  Peter J. Sobotta
Samantha R. Colhoun (E)  Catherine E. Kulp  Kemyhatta N. Tatum
Diane M. Cornable  Julie Leighton  Merena C. Tindall
Betty D. Cox  Deborah E. McMillan (E)  Eliza C. Valenti
Deborah A. Crisileo  Kimberly A. Munoz  Lynn M.T. Varo (C)
Douglas A. Kimberly  Susan Lesley Platt (E)  Jenny Vrtaric (A)
Maureen T. Ennis (E)  Eileen M. Regan  Katherine A. Walker (E)
Phyllis L. Fishbein  Joan C. Regan (E)  Caroline Ward (E)
Shirley M. Fledderjohn  Eileen A. Rehn  Ame M. Wells
Kimberley H. Galer  Jill Robinson (E)  Rebecca M. Wiles
Susan D. Gallardo  Jane R. Roche (I)  Mary E. Worth

All USA except: (A) Australia; (C) Canada; (E) England; (I) Ireland
**Unique Design**

The HFAO is uniquely effective for these kinds of gait disorders because it is not a brace, but rather a set of bands designed to work with the natural movement of the leg to improve gait support while also strengthening muscle tone. The HFAO is a dynamic brace, which helps to lift the leg, reducing the effect of gravity. At the same time, it makes the opposing muscles work harder (see Figures 1-3, page 4).

The researchers felt that the device had to meet three specific criteria, explained Mr. Sutliff. First, it had to be lightweight, as excessive weight is frequently a cause of failure in a leg orthosis for MS patients. Second, it had to be easy to don and doff so the user could use the bathroom unassisted. And finally, it needed to be inexpensive to make it available to the average MS patient.

As with any muscle exercise, there can be fatigue and soreness, and so for a 1-week break-in period the patient is limited to wearing the belt for 1 hour, twice a day. After the first week, he or she has usually acclimated enough to wear the device as long as desired.

For the purposes of the study, the initial 24 patients were divided into three groups: 1/3 wore the brace all day every day, 1/3 wore it only in the afternoon when they became tired, and 1/3 wore it only for longer trips, such as to go out walking to the store, mall, or for other trips outside the home. The patients were all given a baseline evaluation and shown how to use the device in the office. They were provided with written instructions to follow at home. They were asked to remove the HFAO before operating a vehicle or dangerous machinery that required foot control. All patients were assessed at 2, 4, and 12 weeks after the initial fitting.

The major complaint to wearing the HFAO was increased back pain in four of the 21 patients; however, two patients who had back and hip pain at enrollment reported a decrease in pain after wearing the HFAO. The device was perceived to be somewhat cumbersome, and one patient discontinued wearing it because she felt it was “ugly.” Table 1 shows the complications patients experienced, along with the measures taken to resolve them.

**Outcomes**

Changes in gait were measured according to three standard tests; the 25-foot Walk (T25FW), Timed Up-and-Go (TUG), and 6-Minute Walk (6MW) tests. The study also employed the newer Mellen Center Gait Test (MCGT) test. A subjective assessment of overall change was also conducted.

| A statistical improvement was observed at the 8- and 12-week assessments, according to all gait measurement tests. |

Three of the initial 24 patients dropped out of the study. One had an MS relapse, one patient failed to comply with office visits, and the third objected to wearing the HFAO on the basis that it was unattractive.

A statistical improvement was observed at the 8- and 12-week assessments, according to all gait measurement tests. An overall improvement of 23% was observed with the T25FW test, which was highly significant. The distance walked in the 6MW improved by 27%, the MCGT improved by 13%, and the speed in the TUG improved by 12%. There was a trend toward a slight decrease in improvement from the 8-week to 12-week visits observed on all but the MCGT. Patient satisfaction was high throughout the study, with scores of 39.9 at 8 weeks and 39.0 at 12 weeks out of a possible score of 45.

The patients all adjusted well to using the device, and most have continued using it beyond the completion of the study. The HFAO can be used in a variety of circumstances, to help patients resume activity they may have ceased out of inability or fear of inability to perform the physical activity. One patient Mr. Sutliff recalled...
liked to fish at a lake that required a hike of more than a mile through the woods to reach his favorite spot, something he stopped doing after a trip when he nearly could not make it out due to fatigue. The HFAO has allowed him to feel confident of his ability to get back from the lake, and so he has resumed this enjoyable activity.

As Mr. Sutliff pointed out, there are obvious limitations to the HFAO, but it has reopened access to the world outside patients’ homes in ways they could not have previously managed. An indirect benefit of the HFAO may be an improvement in lower body strength as a result of increased daily exercise that reverses the effects of muscle atrophy. Additionally, patients may experience a psychological benefit due to improved ambulatory ability and the opportunity to return to normal activities, although this effect was not objectively measured.

The researchers concluded that the HFAO is a safe and effective device for improving gait impairment in MS patients with hip flexor weakness, and provides an indirect improvement in quality of life. MS

<table>
<thead>
<tr>
<th>Complication</th>
<th>Incidence/Total Patients</th>
<th>Complication Resolved/Incidence</th>
<th>Methods Used To Attempt To Resolve Complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Back Pain</td>
<td>4/21</td>
<td>3/4</td>
<td>Reinforced adherence to wear schedule during first 2 weeks; trunk stretching and strengthening exercise instructions were given upon completion of study.</td>
</tr>
<tr>
<td>Contralateral Knee Pain</td>
<td>1/21</td>
<td>1/1</td>
<td>Degenerative joint disease in the contralateral knee was exacerbated by increased walking with HFAO. Aquatic exercise was encouraged upon completion of study.</td>
</tr>
<tr>
<td>Ipsilateral Skin Irritation at Knee</td>
<td>2/21</td>
<td>1/2</td>
<td>In both cases, patients experienced medial knee rubbing from the elastic band due to excess genu valgum. A rigid “spacer” at the ankle bridge widened the attachment points of the elastic bands and resolved the rubbing.*</td>
</tr>
<tr>
<td>Skin Irritation over Intrathecal Baclofen Pump</td>
<td>1/3 (3 of the 21 participants have baclofen pumps)</td>
<td>0/1</td>
<td>Loosened waist belt.</td>
</tr>
<tr>
<td>Mid-Foot Pain</td>
<td>2/21</td>
<td>2/2</td>
<td>Ceased HFAO wear until pain subsided, then resumed HFAO wear using a shoe with a more rigid sole.</td>
</tr>
<tr>
<td>Difficulty with Don/Doff</td>
<td>1/21</td>
<td>1/1</td>
<td>Hemiplegic patient—a D-ring was added to waist belt to allow single-handed tightening of waist belt.</td>
</tr>
</tbody>
</table>

* Since completion of the study, a more rigid ankle bridge is routinely used in manufacturing to help resolve this complication. This change is a direct result of patient feedback.

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We want to hear from you. We welcome your comments and suggestions, as well any information on meetings and studies.

Please write to the editors of MS Exchange at:

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Ridgewood, NJ 07450
Tel: 201-612-7676
Fax: 201-612-8282
COMBINING NEW THERAPIES WITH DMTS MAY ENHANCE EFFICACY

Despite expanding use of emerging therapies (e.g., mitoxantrone, alemtuzumab, and natalizumab) in relapsing-remitting multiple sclerosis (RRMS), trials combining these agents with the disease-modifying therapies (DMTs) glatiramer acetate and the β-interferons remain limited. In an observational series conducted in the United Kingdom, 60 patients were initiated on an induction regimen of 20 mg of mitoxantrone administered once per month for 3 months. The drug was then administered in two further quarterly doses of 10 mg each for a total of 80 mg over 8 months. Glatiramer acetate was initiated in the fifth month, overlapping with mitoxantrone for the final two doses and continuing as maintenance therapy thereafter. So far, data is available on 27 patients followed for between 8 months and 6.5 years. Most were treatment naïve, but six of the 27 patients had previously failed β-interferon therapy, and two had previously failed glatiramer acetate treatment.

To date, only seven relapses have been observed in the entire study cohort. Moreover, disability scores in all patients have remained stable or improved since the beginning of mitoxantrone therapy. Magnetic resonance imaging (MRI) scans of the first 10 patients to undergo this course showed no enhancing lesions and a substantial decrease in overall T2 lesion load.

The author, noting that glatiramer acetate typically reduces the relapse rate by approximately 30% while mitoxantrone does not usually demonstrate activity after 18 months, speculated that the low rate of relapses in this study may be a demonstration of synergy between the two agents. He contrasted his experience with previous studies of mitoxantrone and β-interferons in which disease activity returned rapidly after discontinuation of mitoxantrone. Thus, he urged more study of combination strategies due to the potential for such synergies.


GAIT PARAMETERS MAY PREDICT DETERIORATION

Although mobility impairment is a common and disabling consequence of MS, current clinical assessment tools such as the Expanded Disability Status Scale (EDSS) are not very sensitive to subtle changes in gait and balance. A study of 10 MS patients with mild signs of pyramidal tract involvement (MS-P) and 10 without (MS-NP), all diagnosed within the last 35 months, and 20 age- and gender-matched controls, was undertaken to analyze such impairments. Each participant was asked to walk along a 10-meter walkway at a comfortable speed. During each of six walking trials, bilateral foot-contact, electromyography, and sagittal plane video recordings were taken, with data recorded only over the central 6 meters of the walkway. Subjects also performed functional and lateral reach tests to both dominant and non-dominant sides.

Both MS groups walked with reduced gait speed, decreased stride length, and prolonged double limb support compared with the control group. The MS-NP group displayed greater speed and stride length and spent less time in double limb support. Both MS groups showed more sustained but lower levels of muscle activity and their range of ankle motion was reduced compared with controls. The MS-P group performed significantly worse than controls on balance tests; the MS-NP group’s performance was also poor, but not significantly worse than the control group’s or better than the MS-P group’s.

The authors urged clinicians to evaluate gait speed and balance in their MS patients and investigate changes. Baseline and serial measurements may permit changes in gait to be diagnosed more quickly and permit earlier intervention, they said.

APRIL 28-MAY 5, 2007
59th Annual Meeting of the American Academy of Neurology
Location: Boston, MA
Contact: AAN Member Services, 1080 Montreal Ave., St. Paul, MN 55116
Tel: (800) 879-1960
Fax: (651) 695-2791
Email: membership@aan.com
Website: www.aan.com

APRIL 29-MAY 2, 2007
39th Annual Meeting of the American Association of Neuroscience Nurses
Location: Orlando, FL
Contact: AANN, 4700 W. Lake Ave, Glenview IL 60025
Tel: (888) 557-2266 (US only); (847) 375-4733
Fax: (877) 734-8677
Email: info@aann.org
Website: www.aann.org

JUNE 19-22, 2007
Canadian Neurological Sciences Federation 42nd Annual Congress and the Canadian Association of Neuroscience Nurses Annual Meeting
Location: Edmonton, Alberta, Canada
Contact: Advance Group, Canadian Neurological Sciences Federation, Suite 101-1444 Alberni Street, Vancouver, BC, Canada V6G 2Z4
Tel: +1 (604) 688-9655 Extension 1
Fax: +1 (604) 685-3521
Email: cnsf2007@advance-group.com
Website: www.ccns.org

AUGUST 25-28, 2007
11th Congress of the European Federation of Neurological Societies
Location: Brussels, Belgium
Contact: EFNS Head Office, Breite Gasse 4-8, 1070 Vienna, Austria
Tel: +43 1 889 05 03
Fax: +43 1 889 05 03 13
Email: headoffice@efns.org
Website: www.efns2007.efns2007.org

OCTOBER 7-10, 2007
132nd Annual Meeting of the American Neurological Association
Location: Washington, DC
Contact: ANA, 5841 Cedar Lake Road, Suite 204, Minneapolis, MN 55416
Tel: (952) 545-6284
Fax: (952) 545-6073
Email: julieratzloff@llmsi.com
Website: www.anearnea.org

OCTOBER 11-14, 2007
23rd Congress of the European Committee for Treatment and Research in Multiple Sclerosis 12th Annual Conference of Rehabilitation in MS
Location: Prague, Czech Republic
Contact: AKM Congress Service, Clarastrasse 57, CH-4005, Basel, Switzerland
Tel: +41 61 686 77 11
Fax: +41 61 686 77 88
Email: info@akm.ch
Website: www.akm.ch/ectrims2007

MAY 30-JUNE 2, 2007
First Joint Meeting of the Consortium of Multiple Sclerosis Centers/ACTRIMS
Location: Washington Hilton Hotel and Towers, Washington, DC
Contact: The Consortium of MS Centers
Tel: (201) 837-0727
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