

# Pain management in patients with multiple sclerosis

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Although the idea that pain is not a symptom of multiple sclerosis (MS) continues, many studies have confirmed that over half of MS patients complain of pain. In some patients, it may be in part a result of the exacerbation of the disease. In other patients, it is an acute pain problem such as trigeminal neuralgia, bladder spasms, acute dysesthesia, Lhermitte's phenomenon or painful tonic spasms. In even more cases, it is chronic pain that can take the form of dysesthesia, or repeated muscle spasms and aching. Although MS can cause pain, increasing disability can also produce other complications that are painful such as pressure palsies, decubiti, the effects of poorly fitting wheelchairs, or the musculoskeletal pain that results from the effort to maintain head position and posture with weakened muscles. All of the problems that MS patients experience do not necessarily result from their MS. MS patients can develop all of the medical conditions and pain situations that afflict the rest of the population, and these are usually manageable when the correct diagnosis is made and the approach is focused. Overall, most of the conditions causing pain in MS can be prevented, eliminated or improved, and the remaining patients with chronic pain are managed with strategies that are useful in approaching chronic pain in other situations.

**Key Words:** *Demyelination; Multiple sclerosis; Pain; Trigeminal neuralgia*

## Le traitement de la douleur chez les patients atteints de sclérose en plaques

**RÉSUMÉ:** Bien que l'on persiste à croire que la douleur ne soit pas un symptôme de la sclérose en plaques (SP), de nombreuses études ont confirmé que plus de la moitié des patients qui en sont atteints se plaignent de douleur. Chez certains, elle est en partie attribuable à une exacerbation de la maladie, chez d'autres il s'agit d'un problème de douleur aiguë, par exemple, névralgie trigéminal, spasmes vésicaux, dyesthésies aiguës, signe de Lhermitte ou spasmes toniques douloureux. Dans un nombre encore plus grand de cas, il s'agit de douleurs chroniques qui peuvent prendre la forme de dyesthésies ou de spasmes musculaires répétés et d'endolorissements. Bien que la SP puisse causer de la douleur, l'invalidité croissante peut également engendrer d'autres complications algiques, telles paralysies de pression, escarres de décubitus, effets d'un fauteuil roulant mal ajusté ou douleurs musculo-squelettiques résultant de l'effort pour soutenir la tête et maintenir une posture alors que les muscles sont affaiblis. Tous les problèmes que les patients atteints de SP manifestent ne sont pas nécessairement le résultat de leur SP. Ces patients peuvent développer tous les autres problèmes de santé parfois douloureux qui affligen le reste de la population et il est en général possible de les traiter lorsque l'on pose le diagnostic juste et que l'approche est bien ciblée. De façon générale, il est possible de prévenir, d'éliminer ou d'améliorer la plupart des conditions propices à l'apparition de douleurs dans la SP. Et pour ceux qui souffrent de douleurs chroniques, on peut recourir à des stratégies qui sont utilisées pour lutter contre ce type de douleurs dans d'autres situations.

## PAIN AND MULTIPLE SCLEROSIS

Many physicians were taught in medical school that pain is not a symptom of multiple sclerosis (MS), and this is still a prominent belief among physicians, which is surprising because recent studies have shown that pain is a significant problem for 29% to 81% of patients with MS (1,2). Studies at the Dalhousie MS Research Unit, Halifax, Nova Scotia and

in other similar clinics have shown that about 55% of patients experience significant pain as a symptom of their disease (3-6). This is an important issue for MS patients; patients who reported pain were found to have poorer mental health, regardless of their disability (3).

Five of the common forms of pain often seen in MS are illustrated below. This is not an unusual case.

**TABLE 1**  
**Pain syndromes in multiple sclerosis**

Pain in acute exacerbations
Ocular pain in optic neuritis
Cervical-cephalic pain
Radicular pain
Acute and paroxysmal pain
Dysesthetic pain
Trigeminal neuralgia
Lhermitte's phenomenon
Painful tonic seizures
Bladder spasms
Chronic pain syndromes
Dysesthetic pain
Muscle spasms
Muscle aching pain
Lhermitte's phenomenon
Associated painful conditions
Poorly fitting wheelchair causing buttock, back, limb and neck pain
Muscle tension; fibromyalgia
Osteoporosis pain
Effects of therapy (bladder spasms from cyclophosphamide; avascular necrosis of the hip from steroids)
Compression neuropathies
Decubiti
Falls and fractures
Burns due to poor sensory perception

### CASE PRESENTATION

A 43-year-old woman and former nurse has had relapsing, progressive MS for 18 years. Her first acute attack occurred at age 25 years, seven weeks after the birth of her second child. At that time, she developed numbness in her legs that ascended to a band-like tightness around her abdomen just under her breasts. She experienced an electric shock-like sensation down her legs when she flexed her neck (Lhermitte's sign). During the first years of her illness, she had repeated attacks of numbness and weakness in her legs, severe fatigue, and an episode of right optic neuritis with painful movements of her eye, which cleared rapidly when she was started on steroids (1000 mg of intravenous methylprednisolone given daily for three doses). The fatigue was reduced by amantadine 100 mg twice a day. She continued to work as an operation room nurse, but, eight years ago, she switched to part-time nursing in a less demanding setting because of continued exacerbations, and increasing gait difficulty and fatigue.

Four years ago, she developed the sudden onset of recurrent brief, sharp, lancinating right facial pain, which was aggravated by washing her face, touching the side of her nose, and sometimes by swallowing and talking. This was successfully treated with carbamazepine 200 mg three times a day for the next four months and did not recur.

As spasticity worsened in her legs, she developed recur-

rent painful spasms and a lot of dull aching in the large muscles. These were dramatically reduced by slowly increasing doses of baclofen, maintained at 20 mg three times a day and 10 mg at bedtime. Any further increase caused her to become generally weak. She had bladder frequency and urgency, and occasional painful bladder spasms that responded well to oxybutynin chloride 5 mg as needed, infection management, increased fluids and drinking a glass of cranberry juice each day.

Her major distressing painful symptom was burning and a 'pins and needles' feeling in her feet and sometimes in her hands. Even the bedclothes caused discomfort by rubbing against her feet. A number of agents were tried to alleviate these symptoms, including tricyclic antidepressants, but none was helpful enough to tolerate the side effects. The burning and 'pins and needles' sensation continues to be one of her major complaints.

She has been receiving interferon beta-1a (Rebif, Serono, Norwell, Massachusetts) by subcutaneous injection three times a week for the past two years and has been well, with no further attacks, although she continues to complain of fatigue, heat sensitivity, distressing burning in her feet, and weakness and stiffness in her legs. Her mood is good, and her outlook is positive. She is assisted by a caring husband and two supportive children.

This case illustrates the symptoms of shock-like sensations that arise from stretching the inflamed posterior column fibres with neck flexion (Lhermitte's sign), pain in the eye with optic neuritis, trigeminal neuralgia, painful bladder spasms, painful leg spasms and aching from spasticity, and the dysesthesia of sensory abnormality. These are only some of the types of pain in MS (Table 1).

### PAIN SYNDROMES IN MS

#### Pain in acute exacerbations

Some painful conditions in MS are transient, but others are so disturbing that they require treatment. Patients in an acute attack, especially when the spinal cord is involved, may have pain in the distribution of the neurological dysfunction. Two variations are acute neck and head pain at the onset when the cervical cord is involved, and pain below the breasts, often described as a squeezing tight pain as if a rope was tightened around the chest. These respond to the usual treatment for an acute attack, intravenous methylprednisolone 1000 mg infused over 30 mins given daily for three days. Many use a taper with oral prednisone, but I do not advocate this.

Optic neuritis is often accompanied by pain behind the eye, especially when the eye is turned, putting traction on the inflamed optic nerve. It is not uncommon for the eye aching and pain to precede changes in visual acuity. The pain responds rapidly to intravenous steroids as used for an acute attack.

#### Acute and paroxysmal pain

Paroxysmal and transient painful symptoms occur in many patients with MS at some time in their course and may rarely be a presenting feature (7). Dysesthesias are one of the most

common symptoms of discomfort in MS patients, occurring in about one-third of cases. Although many words are used to describe the symptoms of sensory dysfunction, such as pins and needles, tingling, or numbness, some say it is painful, particularly when the sensation is burning or there is sensitivity to touch (8,9). If sensory dysfunction occurs with an acute attack, it may settle with time or with intravenous steroids. Tricyclic antidepressants, such as amitriptyline or gabapentin, are helpful but are not usually prescribed unless the problem becomes chronic.

Trigeminal neuralgia is not very common in MS, but it does occur much more frequently in the MS population than idiopathic trigeminal neuralgia in the general population (10,11). The disorder scenario is the same in both populations, except that, in MS, patients are younger and neuralgia may be bilateral. It is a well known neurological rule that if trigeminal neuralgia occurs in a person before the age of 50 years, the person probably has MS. Both populations usually respond to carbamazepine 200 mg three or four times a day. A few will respond to much lower doses. Patients who do not respond or who cannot tolerate the side effects will probably respond to baclofen or gabapentin. Recently, a prostaglandin E analogue has been used in a few cases (12). In unusual and resistant cases, neurosurgical procedures such as percutaneous trigeminal rhizotomy or glycerol injection achieve excellent results (13).

Lhermitte's phenomenon is not always expressed as pain but is experienced as a distressing electric feeling on flexion of the neck. Occasionally, coughing and sneezing, or turning the neck can produce the shock (14). It indicates inflammation or irritation of the posterior columns of the cervical spinal cord. Although it is most commonly due to MS, it can also be seen with cervical cord compression or vitamin B12 deficiency. Lhermitte's phenomenon usually improves as the sensory symptoms improve with time or steroid therapy.

Tonic seizures can cause painful spasms on one side of the body and may occur many times a day (15,16). Epilepsy is sometimes considered because the spasm is down one side of the body, but intellect and consciousness are unimpaired. Therapy with anticonvulsants is successful, however, and most respond well to carbamazepine 200 mg three or four times a day. Lamotrigine, gabapentin and baclofen are also useful. Mexilitine was helpful in a small initial report (15). After a few months without spasms, the drug can be slowly withdrawn.

Painful bladder spasms may occur with infections or when patients are undergoing cyclophosphamide therapy (an infrequent approach with questionable results). These patients usually respond well to the treatment of the urinary tract infection and oxybutynin 5 mg twice a day. It is also important that patients with bladder involvement take adequate fluids. Daily intake of cranberry juice can reduce bladder irritation, urine odour and the number of infections.

### **Chronic pain in MS**

Chronic pain is a feature in 25% of MS cases and is a more common problem than acute pain, again raising the question

of why pain was not thought to be a symptom of MS for so long (4). Rarely, the development of chronic pain may be a presenting feature of the disease (17).

Chronic dysesthesia is the most common chronic pain symptom in MS and is also one of the more difficult symptoms to treat effectively. Some patients respond to amitriptyline in low doses of 25 to 50 mg daily taken at night. Reported success with this drug varies from 20% to 75% (1,4). These patients often have trouble with sleep, especially with the discomfort of bedclothes against the dysesthetic limbs, and amitriptyline helps the person sleep. Nortriptyline or desipramine can be helpful if the anticholinergic side effects of amitriptyline or the tricyclic drugs are problematic. Intravenous lidocaine has been tried in some patients, but this is a questionable approach. Mexiletine may be helpful (15). Gabapentin is also helpful in some. After trying the above drugs, I think it is not useful to pursue trying other drugs in an attempt to reduce the effects of altered sensation because this results in more side effects and little benefit. I have had little success with transcutaneous electrical nerve stimulation (TENS), biofeedback or physical therapies.

Painful muscle spasms often occur with spasticity, and, because spasticity usually increases slowly, the problem is often chronic and worsens with time. Extensor spasms are more common than flexor spasms. The spasms can be reduced by increasing doses of baclofen. This drug is more successful in treating the painful symptoms of spasticity than in improving function. The spasms, aching pains and shooting pains are often very effectively reduced by baclofen 10 to 20 mg three or four times a day. Some patients cannot tolerate high doses of baclofen, so the drug is started at low levels, such as 5 mg (a half tablet) three times a day. The dose of baclofen is then slowly increased while watching for feelings of generalized weakness. This generalized weakness and malaise occurs in all MS patients at some level, but whether a patient can tolerate large doses is not predictable. Therefore, I begin with slowly increasing amounts, starting with 5 mg twice a day. A single bedtime dose of 10 to 20 mg may work in some patients who have night spasms. Recently, tizanidine has become available; this antispasticity agent is also effective in reducing the painful symptoms of spasticity and does not cause the weakness that many experience with higher doses of baclofen. Both drugs can be used together in resistant cases. In severe cases, intrathecal baclofen, intrathecal morphine, or surgical release procedures or myelotomies may be used. Some attempts have been made to treat spasticity with injections of botulinum toxin, but this requires large doses and often needs to be repeated, making it impractical and expensive.

Deep muscle aching and pain in the legs are also common in spasticity. This aching also responds well to baclofen or tizanidine coupled with exercise and massage.

### **Associated problems causing pain**

It is important to remember that all problems that occur in MS patients are not due to MS. Disorders that can occur in anyone can occur in MS patients because they also develop the

complications of increasing disability, and the distress and emotional problems of dealing with a chronic and progressive disease that affects their future and that of their family (18). In the management of MS, patients' attention to migraines, back pain, tension headaches, fibromyalgias, arthritis and other common pain syndromes is important when these conditions appear.

Musculoskeletal pain that arises from remaining in the same and sometimes uncomfortable position is common and can be relieved by frequent repositioning, massage, exercise and stretching. If the problem continues, a physiotherapist should be consulted. Backache is common (4) and can result from the effort of walking with stiff, spastic legs. Patients with this symptom also benefit from physical therapy and local measures such as heat, massage and analgesics. Because of inactivity and repeated steroid use, many patients develop osteoporosis, which can be associated with bone aching and pain (19). A disturbing but fortunately unusual complication of steroid therapy is avascular necrosis of the hip. This is often missed because the patient may not be walking, and pain in the hips and back is common in patients who require a wheelchair.

A common cause of pain in the more disabled patient is a poorly fitting or aging wheelchair. A poorly fitting seat or wrong size of wheelchair is often noted in clinics, and many patients have chairs that need repair or replacement. The chair may have been borrowed from another patient with no individual changes made. Spending long days sitting in such chairs can cause pain and discomfort. Over half of the people who spend long periods in a wheelchair complain of neck pain, which can be reduced by stretching exercises, massage and analgesics (19). Neck pain that arises from the strain of holding the head up can be assisted by a more reclining position and a headrest. A referral to rehabilitation personnel is often very helpful when these problems occur.

Because of disability, the MS patient may develop painful pressure palsies from remaining in the same position in bed or in a wheelchair, and the paresis or sensory change may be misidentified as a manifestation of central demyelination. Advice about frequent changes in position, the common pressure points and effective padding is often enough to prevent this problem.

## CONCLUSIONS

When the MS patient complains of pain, it is necessary to assess the symptom carefully for the underlying cause because accurate diagnosis allows the problems to be prevented, eliminated or reduced. Although pharmacological approaches are very helpful, all patients require explanations, reassurance and a sense that their discomfort is being taken seriously. Too often their complaints of pain, and the associ-

ated frustration and fear are waved off with the statement that pain is not a symptom of MS. In most instances, pain management in the MS patient is successful. Even in those with persisting pain, there is benefit in attention to the problem, careful diagnosis, assistance with effective coping mechanisms, explanation and reassurance.

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