

# PAIN SYNDROMES IN MULTIPLE SCLEROSIS PATIENTS – PATIENT EXPERIENCE AT LIPIK SPECIAL HOSPITAL FOR MEDICAL REHABILITATION

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**SUMMARY** – In the study, we evaluated 61 multiple sclerosis patients hospitalized at our hospital in the period from October 1, 2013 to February 15, 2014. The aim of the study was to investigate pain syndromes associated with the underlying disease. Pain in the month preceding assessment was reported by 90% of patients. Most patients suffered from low back pain (52%) and musculoskeletal pain (39%), followed by neck pain (31%), painful tonic spasm (26%), neuropathic extremity pain (23%) and pain due to spasticity (21%). Other types of pain were present in less than 20% of patients. A total of 67% of patients were taking analgesics; the most frequently used were nonsteroidal antiinflammatory drugs, while drugs against neuropathic pain were taken by a smaller number of patients. The high incidence of pain syndromes pointed to the importance of regular physical therapy procedures.

**Key words:** *Multiple sclerosis; Pain; Analgesics*

## Introduction

Pain is an unpleasant sensory and emotional experience associated with existing or impending tissue damage (International Association for the Study of Pain, 2012 revised definition). Based on the pathogenesis, pain can be nociceptive, neuropathic or psychosomatic. Nociceptive pain occurs due to existing or impending damage to non-neural tissue and results from the activation of nociceptors – sensory pain receptors in the peripheral somatosensory nervous system. It is classified as somatic or visceral pain. Somatic pain occurs through the activation of nociceptors located in somatic structures (skin, subcutaneous tissue, muscles and joints). Visceral pain is initiated through the activation of nociceptors located in visceral structures (internal organs).

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Neuropathic pain is caused by damage to or disease of the somatosensory nervous system. It is classified as either central or peripheral. Central neuropathic pain is caused by damage to or disease of the central somatosensory nervous system (spinal cord, brainstem, thalamus and its projections towards the cerebral cortex). Peripheral neuropathic pain is caused by damage to or disease of the peripheral somatosensory nervous system. It occurs in conditions that affect individual or multiple nerves (neuralgia of the nerves, polyneuropathy, radiculopathy).

Previous studies have often ignored pain as an important symptom in patients with multiple sclerosis (MS)<sup>1</sup>. The estimated prevalence of pain in patients with MS varies in different studies from 26% to 86%<sup>2-11</sup>. The reason behind this is the existence of large differences in the patient sample surveyed, use of different research methods, testing different pain localizations and use of different criteria for defining a particular pain syndrome associated with MS<sup>9</sup>. There is no internationally recognized classification of pain

syndromes in MS patients.

This study involved the use of a modified classification as proposed by Truini *et al.*<sup>12</sup>. The mentioned authors classify pain in those suffering from MS as neuropathic pain (neuropathic pain in the limbs, trigeminal neuralgia, Lhermitte's sign), mixed pain (painful tonic spasms, pain due to spasticity), nociceptive pain (pain due to optic neuritis, musculoskeletal and joint pain, back pain, migraine, tension headache, pain due to therapy) and other pain syndromes.

## Patients and Methods

This study analyzed the presence, incidence, localization, type and strongest intensity of pain in patients with MS over a period of one month prior to hospitalization in our institution. In addition, the frequency and types of analgesics used in the mentioned period were analyzed.

Respondents were people with MS who underwent inpatient rehabilitation in the Lipik Special Hospital for Medical Rehabilitation in the period between October 1, 2013 and February 15, 2014.

The study included patients older than 18 years with a diagnosis of MS according to the revised McDonald criteria<sup>13</sup>.

The exclusion criterion was serious cognitive damage. Based on the exclusion criterion, three patients were not enrolled in the study. Information was collected on each patient regarding their age, gender, type of MS, time elapsed since being diagnosed, presence of pain, pain severity, analgesic and spasmolytic therapy.

In each patient, the level of incapacity was determined based on the Expanded Disability Status Scale (EDSS) score<sup>14</sup>.

The severity of pain was measured using a visual analog scale (VAS), whereas cognitive status assessment was performed using the Mini Mental Status<sup>15</sup>.

The study was approved by the Hospital Ethics Committee, and a written consent for participation was obtained from study patients.

## Results

The study included 61 subjects, 44 (72%) women and 17 (28%) men, mean age 47.5 (range, 27-71). The mean time elapsed since being diagnosed with MS

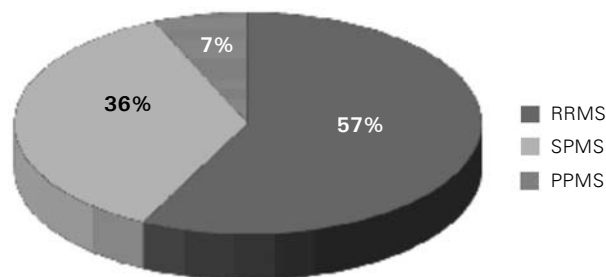


Fig. 1. Types of multiple sclerosis.

RRMS = relapsing-remitting MS; SPMS = secondary progressive MS; PPMS = primary progressive MS

was 10.9 years (range, 6 months to 38 years). Of the total number of patients, 35 (57%) patients had the relapsing-remitting form of the disease (RRMS), 22 (36%) secondary progressive form (SPMS), and four (7%) primary progressive form (PPMS) (Fig. 1).

The mean EDSS was 5.5 (range, 1.5-9). Fifty-five (90%) patients reported experiencing pain for one month prior to hospitalization, 44 (72%) of them having experienced pain in more than one location. Most patients had back pain, followed by musculoskeletal and joint pain, neck pain, painful tonic spasms, neuropathic pain and pain in the extremities caused by spasticity. Less than 20% experienced the following in the respective order: migraine headaches, group of other types of pain, tension headaches and Lhermitte's phenomenon, pain due to therapy, and neuralgia of the trigeminal nerve.

Table 1. Incidence of particular pain syndromes

Pain syndrome	n	%
Neuropathic extremity pain	14	23
Trigeminal neuralgia	2	3
Lhermitte's sign	5	8
Painful tonic spasm	16	26
Spasticity pain	13	21
Optic neuritis pain	0	0
Muscle, joint and skeletal pain	24	39
Low back pain	32	52
Migraine	10	16
Tension-type headache	5	8
Treatment-induced pain	4	7
Other pain	7	11
Neck pain	19	31

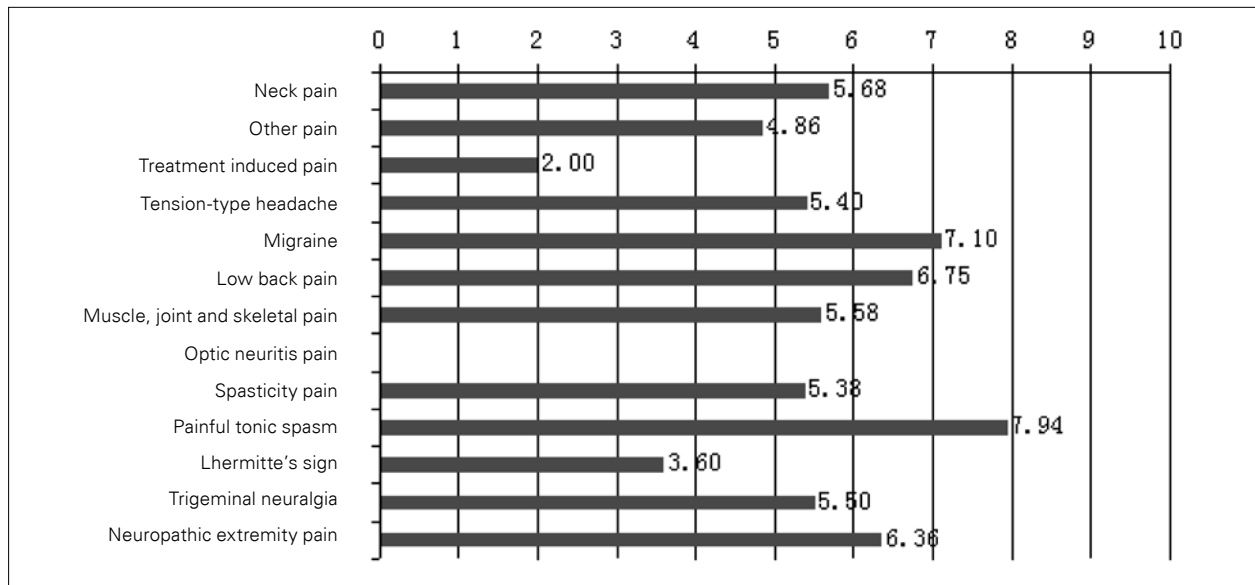


Fig. 2. Mean pain intensity according to localization (visual analog scale).

None of the patients had optic neuritis during that period. There were two patients in the group experiencing other types of pain who complained of pain in the abdomen, followed by two who had pain in their eyes and one patient with post-herpetic neuralgia, pain in the chest and due to decubitus ulcer. Pain as a side effect of therapy was reported by four subjects; two had myalgia as a result of taking interferon, and another two pain due to needle injections when taking glatiramer acetate (Table 1).

Analysis of average pain intensity of each pain syndrome measured according to VAS revealed that patients reported tonic spasms as the most painful syndrome, followed by migraine headaches, then back pain and neuropathic pain in the extremities (Fig. 2). Forty-one (67%) patients were taking analgesics, 18% of them on daily basis (Fig. 3).

Analysis of the types of analgesics showed that 58% of patients were taking nonsteroidal antirheumatic

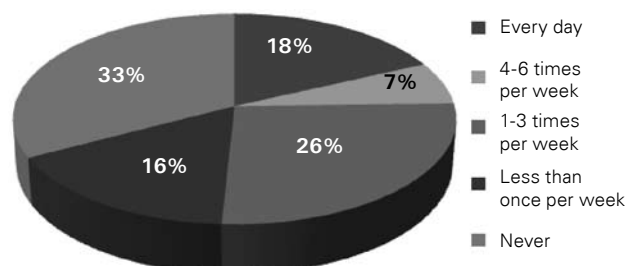


Fig. 3. Frequency of medication (%).

Table 2. Drug used for neuropathic pain relief

Drug	n	%
Antiepileptic	3	23
Antidepressant	0	0
Tramadol	8	62
Combination	2	15

matic drug as monotherapy, 15% a drug to reduce neuropathic pain as monotherapy, 10% other analgesics (paracetamol alone or in combination with analgesics), and a combination of non-steroidal antirheumatic drugs and medication to reduce neuropathic pain amounting to 17% (Fig. 4).

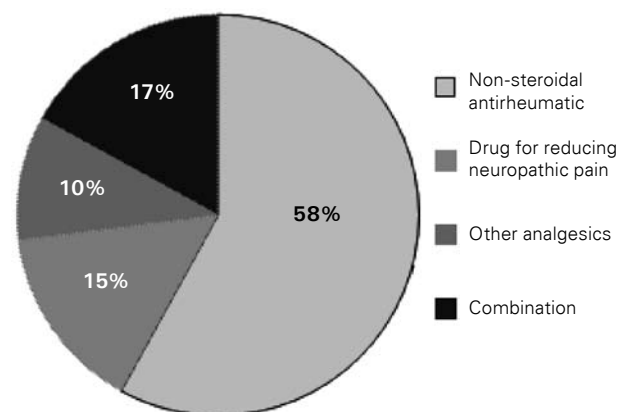


Fig. 4. Types of analgesics.

Among drugs taken for neuropathic pain relief, tramadol was most common, followed by antiepileptic, and then a combination of tramadol and antiepileptic drugs (Table 2). Spasmolytics were taken by 27 (45%) patients, of which 15 (56%) took baclofen, 9 (33%) diazepam, and three (11%) took a combination of these two drugs.

## Discussion

The study showed the presence of pain in 90% of patients with MS. Due to differences in patient sample, use of different research methods, testing of different localizations of pain and use of different criteria to define a particular pain syndrome associated with MS, only a partial comparison with other studies is possible.

Studies that conducted meta-analyses have shown the incidence of pain in 75% of patients over a period of one month prior to testing<sup>9</sup>. In a meta-analysis conducted by Foley *et al.*, the studies included different periods when testing pain and the incidence of pain was 63%<sup>7</sup>.

In a study by Archibald *et al.*, which included 85 patients, the incidence of pain for a period of one month prior to testing was 53%<sup>16</sup>, while the study by Bacher Svendsen *et al.*, which included 771 patients, showed that pain was more frequent in 79.4% of the respondents<sup>2</sup>. Our study showed a slightly higher incidence of pain syndromes compared to these studies. This may be because our patients were referred to inpatient rehabilitation, thereby excluding those with minor functional deficits that are rarely treated as inpatients.

Most of our patients had back pain (52%), musculoskeletal and joint pain (39%), neck pain (31%), painful tonic spasms (26%), neuropathic pain in the extremities (23%), pain due to spasticity (21%) and migraine headaches (16%).

Compared to a meta-analysis that included 17 studies<sup>7</sup>, comparable incidence of neuropathic pain in the extremities and trigeminal neuralgia was recorded in our study; however, we found less headaches (migraines and tension headaches), while there was a higher incidence of back pain and painful tonic spasms.

The highest incidence of back pain including musculoskeletal and joint pain could be explained by the

fact that these pains are common in the general population<sup>17-19</sup>, while Truini *et al.* conclude that postural abnormalities caused by neurologic deficits contribute to an increase in the prevalence of the listed pain syndromes<sup>12</sup>.

Analyzing the intensity of pain in a particular pain syndrome, it becomes evident that the most painful experience are tonic spasms, followed by migraine headaches, then back pain and neuropathic pain in the extremities.

A total of 67% of respondents were taking analgesics, 90% of them experiencing pain. Another 11% of patients experiencing pain were taking only spasmolytics (as monotherapy). This means that some patients were avoiding taking analgesics (stating concern about the drug side effects), while some were mitigating the effects of pain by using spasmolytics as monotherapy.

Nonsteroidal antirheumatic drugs were the most often administered analgesics. Drugs for reducing neuropathic pain, predominantly tramadol, were taken by a small number of patients, followed by antiepileptic drugs. None of the study patients was taking antidepressants, which are otherwise also recommended for the treatment of pain<sup>20</sup>. Fourteen patients were taking medication for reducing neuropathic pain, alone or in combination with nonsteroidal antirheumatic drugs. In the total sample, 20 patients had pain classified as neuropathic in the narrow sense (neuropathic pain in the extremities, Lhermitte's sign, trigeminal neuralgia). Of these 20 patients, seven were taking medication for reducing neuropathic pain, while another seven were taking tramadol for back pain, neck and muscle-joint-bone pain. When taking into account that chronic back pain was also partly experienced as a neuropathic component, hypo-utilization of the listed drug groups is also a possibility, but only a small number of patients may have had an impact on the result.

## Conclusions

Pain is a common problem in people with MS. In this study, pain was present in 90% of patients over a period of one month prior to hospitalization. The most common form of pain was back pain including musculoskeletal and joint pain, partly due to the high prevalence of pain syndromes listed in the general population. Postural abnormalities caused by neurologic deficits are an additional cause of these pain

syndromes.

Approximately 20%-25% of respondents stated that they were affected by neuropathic pain in the extremities, painful tonic spasms and pain caused by spasticity. The above syndromes in the sample of patients may be associated with MS.

A total of 67% of the respondents were taking analgesics and 25% were taking drugs four days a week or more frequently. The most common were nonsteroidal antirheumatic drugs, while drugs for reducing neuropathic pain were taken only by a small number of patients.

Given the prevalence of pain syndromes and frequent use of analgesics, it becomes evident that regular physical therapy procedures are important; besides being aimed at reducing functional deficit or maintaining an existing one, they significantly influence reduction of pain components.

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## Sažetak

## BOLNI SINDROMI U OBOLJELIH OD MULTIPLE SKLEROZE – ISKUSTVA BOLESNIKA LIJEČENIH U SPECIJALNOJ BOLNICI ZA MEDICINSKU REHABILITACIJU U LIPIKU

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U studiji je obuhvaćen 61 oboljeli od multiple skleroze. Svi su bili hospitalizirani u našoj ustanovi od 1. listopada 2013. do 15. veljače 2014. Cilj rada je bio istražiti bolne sindrome pridružene osnovnoj bolesti. Bolovi su bili prisutni u 90% ispitanika. Najveći broj oboljelih imao je bolove u leđima (52%) i mišićno-zglobno-koštane bolove (39%), nakon čega slijede bolovi u vratu (31%), bolni tonički spazmi (26%), neuropatski bolovi u ekstremitetima (23%) i bolovi uslijed spasticiteta (21%). Drugi tipovi bolova bili su prisutni u manje od 20% oboljelih. Analgetike je uzimalo 67% ispitanika, najčešće nesteroidne antireumatike, dok je lijekove protiv neuropatskih bolova uzimao manji broj bolesnika. Visoka učestalost bolnih sindroma ukazuje na važnost redovitih postupaka fizikalnih terapija.

Ključne riječi: *Multipla skleroza; Bol; Analgetici*