Study on the characteristics of pain in patients with spinal cord injury

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ABSTRACT

Aside from the loss of functionality after a spinal cord injury (SCI) pain is considered one of the most disabling complications experienced in the rehabilitation process, even with the significant advances in understanding the physiopathology and treatment of the pain, the approach to this symptom is still precarious in spinal cord injury. **Objective:** To describe the characteristics of pain in this population and to associate the pain between variables such as the type of injury, the interference in the daily living activities (DLA), and its onset. **Method:** It is a descriptive cross-sectional study and was conducted on 77 patients with spinal cord injuries; the survey was applied using a semi-structured interview. Mean and standard deviation and absolute and relative frequencies were calculated, and for the association between qualitative variables we used the Chi-square test (χ^2). **Results:** The mean age was 38.26 ± 12.43 years, 84.4% of which were men, and 80.5% were paraplegics. Thirty-one were caused by motor vehicle crashes and twenty-nine were by gunshot; 61% of them were fully disabled. As for the pain, 44.2% reported severe pain and 29.8% moderate, 50.6% felt no pain above the lesion, but 58.4% felt it below. Thirty-nine patients reported feeling burning pain, 40% reported that the pain came in the first year after SCI. Pain intensity was 5.44 ± 3.18 points, with 5.20 ± 3.07 in men and 6.75 ± 3.54 in women; for tetraplegic individuals it was 4.13 ± 3.18 and with 5.76 ± 3.12 in the paraplegics. For 27 patients the pain worsened if they remained in the same position, improved to 22 by performing physiotherapy, and to 21 with a change in position. For 68.8% of the patients the pain did not interfere with their DLAs. Twenty-eight used analgesics. It was significantly mentioned that the presence of pain below the lesion interferes with the DLAs (p = 0.04) and appears in the first year after injury above and below the lesion (p = 0.05 and p = 0.01), respectively. **Conclusion:** Pain was prevalent in those with injured spinal cords, more evident in women, and for the majority arose in the first year after injury and interferes with their DLA. Physiotherapy and a change of position decreased the pain. Therefore, orientations and interventions by the multidisciplinary team should be immediate after the injury, because the prevention or reduction of this complication will lead to an improved quality of life and the re-adaptation of the patient to their family and social life.

Keywords: activities of daily living, pain/complications, spinal cord injuries

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INTRODUCTION

Spinal cord injury (SCI) is defined as a clinical condition of the spinal cord, characterized as either temporary or permanent.[1-3] Standardizations defined by the American Spinal Injury Association (ASIA) are used to evaluate the motor and sensory function in the population with SCI.[4-6] Regardless of the impaired spinal cord segment, there are alterations of the motor, sensory, and autonomic functions, resulting in partial or total loss of the voluntary movements or of sensitivity, and alterations in the functioning of the urinary, intestinal, respiratory, circulatory, sexual, and reproductive systems.[3,7,8]

According to estimates, approximately 20 to 40 individuals/million/year suffer SCI, and proportionally the most afflicted demographic is that of young males. In Brazil, 130 thousand individuals suffer from spinal cord injury[1] and it is estimated that about 6,000 new cases occur every year, which is considered a great Public Health problem, in view of the high number of patients with this clinical condition.[9]

In addition to the functional loss, pain is seen as one of the main and most disabling complications experienced by individuals in the rehabilitation process.[10-12] Pain after spinal cord injury is difficult to treat, and traditionally medical interventions have failed to provide relief.[13,14] Despite significant advances in the understanding of pain physiopathology and treatment, approaching this symptom is still precarious in SCI,[11,15] for there is a deficiency concerning standardization and classification of the various types of pain after the injury, showing a wide variation in the values that would indicate incidence and prevalence, culminating in the diversity of therapeutic measures to manage pain.[6,12]

The prevalence of pain is reported among 11% to 94% of the patients with SCI,[10,16-19] and may be divided into neuropathic, musculoskeletal, and visceral.[11,14] Neuropathic pain is defined as spontaneous, associated with pathological damage and alterations to the central and/or peripheral nervous system, resulting from traumas, infections, ischemias, and oncological diseases. The International Association for the Study of Pain (IASP) recently defined neuropathic pain as caused by injuries or somatosensory nervous system diseases.[6,9,20,21] Neuropathic pain can occur in 34% to 94% of patients,[5] present after 5 years at the level of the lesion in 41%, and below the lesion in 34% of the individuals with SCI.[22] After an SCI, there are neuroplasticity phenomena, with consequent abnormal neuronal sprouting of the peripheral neurons located in the dorsal column of the spinal cord, resulting in an increase of painful synaptic transmission.[23,24] Musculoskeletal pain is caused by trauma or inflammation of the bone, joint, or muscular tissues, mechanical instability, muscular spasm, or it can be secondary to excessive use. Visceral pain is associated with visceral afflictions, and it is found in deep visceral structures.[11]

The intensity of pain is one of the main reasons it is considered the most worrisome factor.[25] There are various methods to evaluate pain, and each one has its use in different clinical situations.[26] Different scales are available for measuring pain, varying from complex multidimensional instruments to simple numerical and facial expression scales, which help the patient to identify his pain and make it possible to document the efficacy of the treatment. According to Dijkers et al.[19] we must use a numerical scale (NS) to quantify the intensity of pain from 0 to 10 points, as recommended by the Initiative on Methods, Measurement, and Pain Assessment in Clinical Trials (IMMPACT), by the International SCI Pain Basic Data Set, and by the National Institute on Disability and Rehabilitation Research (NIDDR), as suggested by the Pain Outcomes Committee on Spinal Cord Injury.

Invariably, individuals who suffer a spinal cord injury need to adapt to a new life style, acquiring new perspectives and constantly searching for a new future. Thinking this way, each point in the rehabilitation process of the patient must be considered and programmed by the health team, seeking to know and control pain in patients with spinal cord injuries.

OBJECTIVE

The present study seeks to describe the characteristics of the pain status of individuals with spinal cord injury assisted at the Neurofunctional Physiotherapy department, *Hospital Universitário - School Hospital (HU/UEL)*, in the city of Londrina/PR, and verify the associations of pain with the type of spinal cord injury, with its interference in the daily life activities (DLAs), and with the time of its onset.

METHOD

This is a transversal, descriptive, and exploratory study. To fulfill the statistical requirements for validity of the study, the sample calculation was made with the following formula: $e = \alpha\sqrt{p.q/(n)}$,[27] considering a standard error of 1% and a prevalence of 0.19 of individuals with spinal cord injury in Brazil,[28] we reached a minimum of 73 patients for this study, but the sample was overestimated in 77 patients to guarantee that the possible losses during the study would not go below the calculated minimum. The patients were selected in sequence from the appointment book of the Spinal Cord Injury Neurofunctional Physiotherapy Clinic at the *Hospital Universitário (HU/UEL)*, in Londrina/PR. The inclusion criteria were as follows: both genders; age equal to or older than 18 years; with 6 months of spinal cord injury to avoid the medullary shock phase; with medical diagnosis of spinal cord injury by trauma, by inflammatory, or by tumoral processes; classified as tetraplegic or paraplegic as standardized by ASIA, and those who signed the Free and Informed Consent Form. Any patients who refused to sign the Free and Informed Consent Form, who had a hypothetical diagnosis of spinal cord injury still to be clarified, or who had neurofunctional diagnoses of tetraparesis, paraparesis, or medullary syndromes were excluded from this study.

The data collection was made following a semi-structured interview script, with 26 open and closed questions, which included identification data on: name, gender, age, clinical information, neurofunctional information, type of spinal cord injury, and etiology; and data on the pain: its intensity, whether it was above or below the lesion, localization, type (burning, sharp, tingling, muscular and cold), whether the onset was after the injury, time of appearance, factors that improve or worsen the pain, how it interferes with the daily life activities (DLAs), and the use of specific analgesia medication. To indicate the pain intensity, the Numerical Scale of Pain (NS) was used, which allowed the patient to verbally indicate the intensity, in which zero (0) meant the absence of pain, and ten (10) meant the maximum pain tolerated by the individual.[26,29,30] All the information was collected between May, 2011 and April, 2012, by only one interviewer, in the first consultation room at the Neurofunctional Physiotherapy clinic at the *Hospital Universitário (HU/UEL)*.

The average and standard deviation (±) were calculated for the numerical variables, after the Kolmogorv-Smirnov normality test prerequisites were presumed. To answer the objectives of the study the absolute and relative frequencies were calculated. To analyze the association between type of injury and pain, between the presence of pain above and below the lesion with its interference with

the DLAs, and with the time of its onset, the Chi-square test (χ^2) or Exact Fisher test was done. All the tests were done with the significance level of 5% ($p \leq 0.05$). All the data were analyzed in the Statistical Package for Social Science (SPSS) program, version 17.0 for Windows.

The present study was approved by the Ethics in Research Committee (ERC) from the Londrina State University/PR, opinion 260/10, according to the National Health Council (NHC) resolution No. 196/96, and was developed at the Neurofunctional Physiotherapy Clinic at the Londrina State University *Hospital Universitário (UEL)*.

RESULTS

The average age of the 77 patients was 38.26 ± 12.43 years, with 36.29 ± 11.03 for males, and 48.92 ± 14.59 for females. As for the neurofunctional diagnosis, there was a predominance of paraplegia. In relation to the etiology, there was a prevalence of automobile accidents, followed by wounds caused by firearms. Most patients suffered from complete spinal cord injury (Table 1).

Table 1. Clinical characteristics of patients with spinal cord injury

	Frequency	%
Gender		
Masculine	65	84.4
Neurofunctional Diagnosis		
Paraplegia	62	80.5
Type of spinal cord injury		
Complete	47	61.0
Etiology		
Automobile accident	31	40.3
Wounded by firearm	29	37.7
Diving	04	5.2
Falls	04	5.2
Wounded by bladed weapon	01	1.3
Others*	08	10.4

* Transverse myelitis and medullary tumor

The average for pain intensity by the numerical scale of pain was 5.44 ± 3.18 points in all the patients. As for genders, the pain intensity was lower for males than for females, with 5.20 ± 3.07 and 6.75 ± 3.54 points, respectively. Regarding the neurofunctional diagnosis, the average for pain intensity was lower for the tetraplegic patients than for the paraplegic ones, with 4.13 ± 3.18 and 5.76 ± 3.12 points, respectively.

The intensity of pain was categorized in three modalities of interpretation: "slight" (1-3), "moderate" (4-6), and "severe" (7-10), 44.2% reported severe pain. Most of them felt burning pain, and 40.3% of them reported that the pain had appeared in the first 12 months after the spinal cord injury (Table 2). For 27 patients the pain worsened if they remained in the same position, and for 22, it improved with physiotherapy. For 68.8% of those interviewed, the pain did not interfere with their DLAs (Table 3).

Table 2. Presence of pain above and below the injury, its location, its type, and its onset time in patients with spinal cord injury

	Frequency	%
Classification for the intensity of pain		
Without pain (0)	10	13.0
Slight (1-3)	10	13.0
Moderate (4-6)	23	29.8
Severe (7-10)	34	44.2
Pain above the injury		
Yes	38	49.4
Pain below the injury		
Yes	45	58.4
Location of the pain		
None	10	13.0
Upper limbs	17	22.1
Lower limbs	16	20.8
Cervical region	04	5.2
Trunk region	19	24.7
Pelvis	11	14.3
Types of pain		
No pain	10	13.0
Burning	39	50.6
Sharp	08	10.4
Tingling	07	9.1
Muscular	12	15.6
Cold	01	1.3
Onset after injury		
Yes	65	84.4

As for the association between the type of injury and the type of pain among those with a complete injury, burning pain was prevalent, but there was no statistically significant association between the types ($p = 0.75$). There was also no statistically significant association indicating that the presence of pain interferes with the DLAs ($p = 0.93$). However, there was a weak statistically-significant association indicating that the presence of pain above the injury appeared in the first year after the spinal cord injury ($p = 0.05$), and that the presence of pain below the injury interfered with the DLAs ($p = 0.04$). There was a strong statistically-significant association indicating that the pain appeared in the first year after the injury ($p = 0.01$) (Table 4).

Table 3. Time of onset of pain, what worsens or improves it, interference with the DLAs, and use of medication

	Frequency	%
Time of onset of pain		
No pain	12	15.6
Up to 1 year after injury	31	40.3
From 1 to 3 years	10	13.0
More than 3 years	24	31.2
What worsens the pain		
Nothing	20	26.0
Same position	27	35.1
Making effort	04	5.2
Climate change	09	11.7
Moving too much	06	7.8
Physical fatigue	01	1.3
No pain	08	13.0
What relieves the pain		
Nothing	19	24.7
Physiotherapy	22	28.6
Changing position	21	27.3
Resting	05	6.5
No pain	10	13.0
Interference with DLAs		
Yes	24	31.2
Pain medication		
Yes	28	36.4

Table 4. Association between type of injury and type of pain, between the presence of pain and its interference with the DLAs, between the onset of pain and the time after the spinal cord injury

Variables	χ^2	Value of p
Type of injury x pain	2.67	0.75
Pain above		
Interference with the DLAs	1.00	0.93
In the first year after the injury	13.00	0.05*
Pain below		
Interference with the DLAs	3.93	0.04*
In the first year after the injury	11.12	0.01*

χ^2: Chi-square; * Statistically significant

DISCUSSION

The results of the present study show that the individuals with SCI are on average, 38 years old, with prevalence of paraplegia as their neurofunctional diagnoses, and are mostly males. These data are in agreement with the study by Vall et al.[3] in which the prevalence was 75% males, paraplegia in 70% of the individuals, and the average age was 33 years old. As well as in other studies,[1,8,16,31] in which the average age was 36 years old among those individuals with spinal cord injuries, the most frequent injuries were a result of automobile accidents, as was also evidenced previously,[32,33] with automobile accidents representing 44% to 50% of the causes. The young adult population represents major risks for the occurrence of automobile accidents,[11] for the increase in the number of injuries is related to festivities[2] combined with alcohol intake, or even with the use of illicit drugs, which is more frequent on celebratory dates. The highest incidence of complete spinal cord injuries was found in the present study totaling 64%, which is in agreement with previous findings,[2,32] which report complete injuries in 54% and 63% of those injured, respectively. As for incomplete injuries, Felix et al.[16] found 36%, and Werhagen et al.[34] found 39%, as was found in the present study, in which 39% had incomplete injuries.

In the present study, 87% of the interviewed patients felt some type of pain, above or below the injury, sometimes in both places in the same individual. In previous prevalence studies,[6,15,35] the results were lower than in the current findings, with the prevalence of pain after the injury of 80%, 79%, and 67%, respectively. It is believed that these discrepancies were caused by different methodologies and inclusion criteria adopted. The exact mechanisms involved in the physiopathology of pain are not yet well understood; nevertheless, in the long term there are alterations in areas of the central nervous system that are involved in the transmission and modulation of pain after the injury.[23] An important factor in determining possible pain mechanisms after spinal cord injury is understanding the physiopathological cascade and molecular-biochemical events initiated by ischemia or trauma, which lead to the reorganization of spinal circuits that integrate, process, and transmit sensory information, altering the expression of chemical mediators that maintain the homeostatic balance between excitatory and inhibitory circuits.[36,11] Many times this results in an increased response from the dorsal neurons to the entry of afferent signals and a consequent increase of information to the encephalon, a phenomenon known as central sensitization.[21,25]

The pain intensity was 5.44 points, which was classified as moderate when the values were within the range of (4-6) and severe at (7-10) by the numerical scale of pain.[29] The average pain intensity for paraplegics was 5.76 ± 3.12, and for quadriplegics it was 4.13 ± 3.18, which is in conformity with the findings by Ulrich et al.[35] where the pain intensity was 5.62 for paraplegics, however, it was lower for quadriplegics with 3.67, even though no significant differences were found between the diagnoses. Alternatively, Modirian et al.[16] found prevalence of pain in patients with cervical injuries. These discordances may be justified by the great difference of samples in the respective studies. A relevant aspect of the present study was the difference found between the pain intensity of males and females, with 5.20 and 6.75, respectively, results that were contrary to the studies,[3,16] in which there was no difference between males and females. For example, in the data from Finnerup et al.[7] in which there was an increased risk of pain for males over that for females. According to Palmeira et al.[21] females report a more intense pain, more frequent episodes, anatomically more diffuse, and more lasting than males with similar diseases, even when disorders specific to the gender, such as male urological and female gynecological pain, are excluded from the analysis.

Most studies on spinal cord injuries used some form of unidimensional scale for evaluation.[26,29] Unidimensional scales are reliable and valid, so they can be used in a clinical environment for their applicability.[31] In this study, the pain intensity was determined by the Numerical Scale (NS), and applied verbally it allowed the quantification of pain from 0 to 10 points, in which 0 means absence of pain, and 10 means the worst pain felt by the individual.[26,29,30] There is a consensus among authors that the use of the Visual Analog Scale (VAS) could be difficult for patients with hand musculature deficit, since this scale consists of a straight line, drawn or printed, of a certain size, with the verbal descriptors absence of pain and the worst possible pain at each end, respectively.[26] The observer must measure the distance between the descriptor: absence of pain and the marking made by the patient in centimeters. It is important to point out the need of motor control for its use, since it is necessary to mark in the instrument with a crossing line, which is not always possible for the patient.[26,30]

The presence of pain above the injury was reported by 50.6% of the patients in this study. However, the conclusions[37] point to 29% of the individuals with pain above the injury. Pain above the impaired spinal region is understood when we consider it of musculoskeletal origin, which is justified by the excessive use of the unimpaired body parts, which may cause damage to muscle tissues, bones, or joints, being generally described as acute or constant pain.[22] For Finnerup et al.[7] pain in the shoulder is frequent in the acute phase, but is also present later, due to the excessive use of the upper limb, remaining in improper sitting positions, muscle weakness, spasticity, subluxation, and alterations in the rotator cuff. In the present study, 58.4% of the patients reported pain below the spinal cord injury, which is close to the information cited by Budh et al.[20] in which 52% referred to pain below the injury, similar also to Modirian et al.[18] with 59%. This pain is due to changes in the central nervous system (CNS) after the spinal cord injury.[11,36] For Ulrich et al.[35] regardless of the injury level, people with higher injuries are more likely to report pain in the upper extremities than people with lower injuries.

As for the location of the pain, the trunk region was the most referenced by 24% of the patients, and similar results were reported in previous studies.[10,15,25,38] Thus, it is understood that the pain reported was musculoskeletal, which can be justified by their remaining long periods in the wheelchair, as well as postural alterations derived from muscular imbalances caused by the plegic or paretic musculature in these cases. The clinical evaluation of the pain associated to SCI is not precise, for these individuals commonly develop complex multiple pain syndromes, with varied characteristics that occur simultaneously in different parts of the body.[4] The onset of pain symptoms, as well as their characteristics and definitions, must be considered in the classification of pain after SCI. However, it is difficult to state with precision any specific resources for the handling of various pain mechanisms, because the injured individuals may develop various types of pain that many times persist, may worsen with time, and normally interfere with the cognitive, emotional, and physical functions of the patient.[4,38]

The burning sensation is one of the most reported complaints in the literature, being more frequent below the injury,[25,39] as confirmed in this study where 50.6% of the patients reported it. These results are similar to findings by Modirian et al.[18] with 48.4%, and by Felix et al.[16] finding 39.3% with burning pain, which can be explained by changes in the nerve cell properties at the location of the injury.[13] Neuroplasticity, including structural neuroplasticity with the appearance of nerve fibers is an essential characteristic of spontaneous recovery after a spinal cord injury, but may produce negative consequences, such as neuropathic pain, spasticity, and autonomic dysreflexia.[6]

The spinal mechanisms that contribute to the different forms of hypersensitivity of acute and chronic pain are undoubtedly complex and diversified.[40] In the present study we noticed a prevalence of 53.3% of burning pain in individuals with paraplegia, mostly complete, but the association was not significant. In a previous study, the burning pain was more common in the incomplete injury, and there was no association between pain and level of the injury.[13] However, Ravenscroft et al.[33] found statistic significance when comparing patients with complete and incomplete injuries, and concluded that the patients with complete injuries felt more pain than the others.

In our study, the pain appeared in the first 12 months after the injury in 40% of the patients, but other studies[16,37] show that 91% of the patients reported pain appearing less than 1 year after the injury, and in 73% of the individuals, the pain appeared in the first 3 months after the injury. In the present study, there was significant association that pain appeared in the first year after the injury, however with less prevalence than what was in the literature. There is a consensus among the authors that early action on the part of the multiprofessional team reduced the appearance of pain complications, but that is still unsatisfactory, which was confirmed by the results of this study, when associations between these variables were made, and also the types of pain reported were not distinctive according to the months of their appearance. In another study,[34] neuropathic pain was found at and below the level of the injury in 13% and 27%, respectively, in a total sample of 402 individuals with SCI.

It is known that the pain worsens or improves due to factors such as the length of time seated, spasms, quick movements, touches, or climatic changes.[25] In the current study, for 35.1% of the patients the pain worsened when they remained in the same position, and for 11.7% it worsened with climatic changes. Contrary to these results, there is a study,[25] in which 73.1% of the injured patients reported worse pain when seated for long time, and 68.7%, when the climate changed. Unfortunately, in the present study the position was not described, but only that their remaining in a certain position would make the pain worse. According to Widerström-Noga et al.[25] the pain may be aggravated by common factors due to sensory abnormalities caused by the activation of sensitized mechanoreceptors on the skin, muscles, or joints, and by the central sensitization. In 28.6% of the patients in the present study, the pain improved with physiotherapy and with changes in the body position. As for the competences of the health professionals, the authors of the present study believe the action of physiotherapy specialized in neurofunctional assistance for this population, as well as early orientation on preventing complications, would make a difference in these results.

Among the non-pharmaceutical interventions, massotherapy and physiotherapy were the treatments used more than 13 times, in which 46.9% to 68.8% of the users noticed a high degree of efficacy.[22] The proposed treatment must be individualized and specialized with the objective of promoting the functional independence of these individuals, and allowing their adaptation to a new lifestyle.[33] Although the biological mechanisms may initiate, maintain, and modulate pain after the SCI, psychological factors can influence the evaluation and perception of pain, and social factors may alter the behavior of the patient in response to these perceptions.[25]

Pain has a significant impact on physical disability, for it interferes with the daily life activities, and has a negative influence on one's health and well-being.[12,16,22,39] For 68.8% of the patients interviewed in the present study, pain did not interfere with their daily life activities, which disagrees with the results of Werhagen et al.[34] in which for 72% of the patients, pain interfered, and for 28%, it did not. In the study by Franzoi et al,[29] 13% of the patients reported that their pain was incapacitating. In the present study, there was a significant association that the pain below and above the injury interfered with their activities, which is a contributing factor to determine quality of life in previous literature.[25,29] It is confirmed that intense and constant pain interferes with the daily life activities and is aggravated by many factors, as already mentioned. Nevertheless, the contribution from current literature is still insufficient for the pain treatment of people with spinal cord injuries.[15] This result is explained by the appearance of neuropathic pain right at the beginning or years after the injury.[16] Yezerski et al.[32] supposed that the pain below the injury depended on the activation of cortical structures, and that to study this type of pain would require behavioral measurements that depend on cortical activation. The individuals who suffered SCI had to adapt to many concomitant pains with different characteristics, as well as to physical disabilities and limitations associated with the injury.[25] Although the researchers generally agree that the interruption of the spinothalamic tract contributes to pain in the SCI, and specifically below the injury, the interruption of other pathways and/or abnormal activity of the sensory system may also contribute to the expression of this pain.[36]

Chronic pain is the complication most related to a lower score in quality of life evaluations.[24] The use of analgesic medication was reported by only 36.4% of the patients, as found in a similar study,[22] in which 35% of the patients used it. However, 54% of the patients used specific medication for pain and spasticity in the Finnerup study.[7] In the present study, prescriptions for medication were not specified, but it is noteworthy that the use of medication is a reality for the patient with spinal cord injury. Although a recent pharmacological study showed some success in alleviating neuropathic pain, none of those treatments are available to the population with spinal cord injuries.[22] The evidence suggests the need for a deeper study of the Rexed's laminae I for neuronal projections and their associated circuits on the surface of the dorsal column, and for an understanding of the neural mechanisms of pain in order to guide new forms to treat it.[40]

One possible limitation detected by the authors of this study, was not using a pain questionnaire specific to SCI patients, for the lack of these instruments transcribed and validated in the vernacular language is what made us build and use a semi-structured interview script. Despite the existence of the McGill Pain Questionnaire, it could not encompass all the variables observed in the present findings. Another possible limiting factor was not having collected

the exact months in which the pain appeared and correlating them with the types of etiologies, with the specific types of pain, and with more detailed body regions. Even though the authors achieved their proposed objective and obtained clarifying results, a study with methodology of intervention in a random clinical test would have been more precise, controlled and validated. Nevertheless, the results were interesting, regarding the characteristics of pain and the association of some pain factors in people with spinal cord injury that incited new perspectives to approach and intervene with this population.

CONCLUSION

The pain in patients with spinal cord injuries was of considerable intensity, more evidenced in females, and for most patients the appearance of pain in the first year after the injury was significant. Physiotherapy and change of body position were important in the improvement of such symptoms. The presence of pain below the injury interfered with the daily life activities. Most patients do not take analgesics, and less frequently, but not less importantly, the pain below the injury was present, and being a neuropathic pain made it difficult to evaluate, handle, and resolve.

In this way, the importance and need for more investigation into the characteristics of pain in individuals after their spinal cord injury is confirmed. It is necessary to develop a standardized instrument that addresses each facet of the problem presented especially for patients with spinal cord injuries. Therefore, a specific approach by a multiprofessional team to pain complications after a spinal cord injury is fundamental. Medication and physiotherapy must be provided to this population early on, the former to have satisfactory results, and the latter to reduce pain through guidance and kinesiotherapeutic resources. The patient should also be oriented about this complication so that he or she understands that pain after the injury may affect their rehabilitation process and wellbeing.

It is noteworthy that a rehabilitation program, well structured by health professionals, that makes it possible to solve or prevent such complications must be encouraged and subsidized by public organs, since its correct treatment reduces health costs.

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