Clinical topographic analysis of neuropathic pain in patients admitted in a center of multidisciplinary treatment

ABSTRACT

BACKGROUND AND OBJECTIVES: Verbal investigation is a critical step of nursing neurological evaluation of neuropathic pain patients, due to its multidimensionality. There are few studies in the literature specifically dealing with this subject. In light of the above, this study aimed at evaluating medical records on clinical topographic characteristics of neuropathic pain reported by patients from a multidisciplinary management center.

METHODS: This is a documental, crossover and quantitative study evaluating 50 medical records of patients with established neuropathic pain diagnosis who came for routine consultations between January and June 2014. Data collection form was based on McGill Pain Questionnaire and data regarding age, gender, pain topography and presence of verbal descriptors were analyzed. Data were submitted to statistical analysis and Chi-square test was applied to compare association among variables.

RESULTS: There has been prevalence of females (64%), with mean age of 57 years. Most common pain descriptors were from the sensory dimension and were associated to cases where neuropathy affected lower limbs (p=0.006).

CONCLUSION: There has been association between topography and pain dimension. Due to the subjectivity and complexity involving neuropathic pain evaluation, it is necessary to understand its clinical manifestations and to prepare the whole multidisciplinary team, especially Nursing, which plays a critical role in verbal investigation of painful patients.

Keywords: Nervous system diseases, Neurological evaluation, Neuropathic pain, Nursing, Pain clinics, Pain measurement.

INTRODUCTION

According to the International Association for the Study of Pain (IASP), pain is defined as unpleasant sensory and emotional experience associated to real or potential injury. Pain is reported since the early days of mankind; however its definition has gone through significant changes until current days. Currently, pain may be seen as a multidimensional phenomenon involving physiologic, sensory, affective and cognitive
aspects and its evaluation shall involve detection, qualification and measurement of all these dimensions. As a function of its nature, pain may be classified as nociceptive or neuropathic. The former is caused by the activation of peripheral nociceptors, with natural physiologic transduction and recognized modulation. Neuropathic pain is a consequence of injuries or diseases affecting somatosensory nervous system with consequent central impairment of information processing and, for such, its symptoms go beyond the physical healing period of such injuries and may be associated to motor, psychic, neuroendocrine and neurovegetative deficits. To identify individuals with neuropathic pain requires approaches involving verbal investigation by means of pain descriptors. The analysis of such descriptors is a stage of nursing neurological evaluation and, in the literature, there are few studies specifically dealing with this subject under neuropathic pain patients' perspective, considering that such procedure is not exclusively object of neurologists, but it is also part of the multiprofessional physical evaluation.

So, this study aimed at analyzing clinical topographic neuropathic pain characteristics, reported by patients of a multidisciplinary treatment center during neurological evaluation, and at discussing available scientific literature results. The analysis of the defined profile provides subsidies for the planning of health actions based on prevalence of cases, as well as contributes for the technical-scientific knowledge of health professionals, especially those involved with pain management.

METHODS

This is a documental, crossover, descriptive and quantitative research carried out in a small-sized multidisciplinary pain management clinic located in the city of São José dos Campos, SP, were the vast majority of patients are private or referred by health insurance and who are followed by professionals of the following specialties: Neurology, Orthopedics, Nursing, Chiroacupuncture, Physiotherapy, Psychology and Nutrition.

Data were collected during three weeks of the month of July 2014, by analyzing medical records of 50 adult patients, of both genders, belonging to the clinic database, randomly and sequentially selected. All patients had established diagnosis of neuropathic pain and had their anonymity preserved, being medical records data used only for statistical purposes.

A form was developed, based on McGill Pain Questionnaire, which is a validated inventory with 78 descriptors organized in 4 dimensions: sensory, affective, evaluative and mixed. This form had patients' identification data and data regarding age, gender, pain topography and presence of neuropathic pain verbal descriptors.

Descriptive and inferential statistical analyses were used. The software GrapPad Instat for Windows, version 3.0 was used for descriptive analysis, where the numerical variable age was evaluated by means of descriptive measures of centrality (mean and median) and of dispersion (minimum, maximum and standard deviation). Categorical variables (gender, pain topography and verbal descriptors) were expressed in percentages, absolute and relative frequencies. The software RStudio, version 0.98.1028 was used for inferential analysis where Chi-square test of linear trend was used to compare the association between pain topography and dimension, with statistical significance of p<0.05.

This study was approved by the Research Ethics Committee, Paulista University, under process 31382214.0.0000.5512.

RESULTS

From 50 patients meeting inclusion criteria, 64% (n=32) were females. Age has varied from 22 to 91 years with mean of 57.3±14.2 years.

With regard to verbal investigation, figure 1 shows the scenario of pain descriptors, allocated according to their dimensions. In cases where patients have reported two or more descriptors, all of them were considered since different pain modalities may be present according to the type of affected fiber.

When investigating the association between pain topography and dimension, results have shown that sensory dimension descriptors are associated to patients with LLLL neuropathic pain, as shown in table 1. To confirm such hypothesis, Chi-

<table>
<thead>
<tr>
<th>Pain topography</th>
<th>Sensory dimension</th>
<th>Mixed dimension</th>
<th>Evaluative dimension</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower limbs</td>
<td>20 (48.8%)</td>
<td>7 (29.2%)</td>
<td>7 (35%)</td>
<td>0.006*</td>
</tr>
<tr>
<td>Thoracolumbar region</td>
<td>6 (14.6%)</td>
<td>7 (29.2%)</td>
<td>8 (40%)</td>
<td>0.866</td>
</tr>
<tr>
<td>Upper limbs</td>
<td>6 (14.6%)</td>
<td>3 (12.5%)</td>
<td>0 (0%)</td>
<td>0.317</td>
</tr>
<tr>
<td>Head/face</td>
<td>4 (9.8%)</td>
<td>1 (4.2%)</td>
<td>0 (0%)</td>
<td>0.179</td>
</tr>
<tr>
<td>Cervical region</td>
<td>4 (9.8%)</td>
<td>2 (8.3%)</td>
<td>1 (5%)</td>
<td>0.367</td>
</tr>
<tr>
<td>Gluteal region</td>
<td>0 (0%)</td>
<td>4 (16.6%)</td>
<td>4 (20%)</td>
<td>1.000</td>
</tr>
<tr>
<td>Intercostal region</td>
<td>1 (2.4%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>**</td>
</tr>
<tr>
<td>Total descriptors</td>
<td>41 (100%)</td>
<td>24 (100%)</td>
<td>20 (100%)</td>
<td></td>
</tr>
</tbody>
</table>

*pStatistically significant Chi-square test; ** inexistent p value.
square test of linear trend was applied with comparison freedom level of 2. Chi-square value ($x^2$) corresponded to 9.9412, being higher than critical Chi-square ($x^2c=0.103$).

**DISCUSSION**

In recent years, the choice of multidisciplinary pain management clinics as alternative for traditional chronic pain management is becoming popular. However, information about users of such health service is still scarce in scientific studies. The interaction between different knowledge and patients’ multidisciplinary approach in pain clinics positions them as active subjects in the therapeutic process and provides a holistic vision to professionals, which makes clinical information more detailed and the diagnosis faster.

In our study, the sample has shown predominance of females, which reinforces the hypothesis of previous studies which have evidenced higher neuropathic pain prevalence among females. Hormonal differences, easiness to verbalize pain and lower tolerance to pain may explain such results.

It is consensus in the literature that longevity progressively and proportionally increases the risk for chronic pain, which is in line with our results, which have shown sample age distribution with mean of 57 years. This prevalence may be associated to labor activities or to the aging process, which increases the risk of developing chronic-degenerative diseases.

With regard to verbal investigation to screen pain descriptors, the form based on the McGill Pain Questionnaire was used because it is a multidimensional and validated tool which allows characterizing and separating pain affective, sensory, evaluative and mixed dimensions. In our study, 10 descriptors were reported by the sample and this broad spectrum of qualifications reinforces the complexity of pain, as well as its individuality. Six from 10 reported descriptors belong to the sensory dimension. From these, there has been prevalence of tingling (14.1%) and burning (14.1%) symptoms which are attributed to the aggression to thin type C and A-delta fibers, respectively. These results confirm previous studies on the subject.

According to verbal investigation data, a heterogeneous pain verbal qualification group was identified; however, the topographic pattern was more homogeneous. As to body location of pain, there has been predominance of LLLL (48.78%). Similarly to this study, pain pattern in the distal portion of lower extremities has been referred by several authors as clinical presentation typical of neuropathy.

Up to now, there were no scientific studies in the literature trying to associate topographic patterns seen in the neurological exam and neuropathic pain descriptors reported during patients’ verbal investigation in multidisciplinary management centers. Our study has identified that sensory dimension is frequently associated to cases where neuropathic pain affects LLLL. For being poorly explored data, such hypothesis was submitted to statistical analysis and was significantly proven, showing that deviations were not due to chance.

Considering this association, it is possible to infer that spinothalamic tract, pathway responsible for the transmission of sensory dimension painful information to thalamus and cortex, had prevailing action on LLLL neuropathies affecting the sample, configuring symptoms of tingling, burning, tugging, flashing, itchy and throbbing pain.

Neurological evaluation knowledge and understanding, as part of physical evaluation, are key for the diagnosis of neuropathic pain. Traditionally, every health professional should recognize patients experiencing pain; however, some professionals, such as nurses, should develop integral assistance to painful patients, to make feasible a multiprofessional care. In light of such responsibility, subsidies to understand neuropathic pain in its different dimensions should be incorporated to clinical practice to guide diagnostic evaluation and assure the correct assistance direction.

**CONCLUSION**

Notwithstanding the limitations of a small sample size, this study has identified an association between pain topography and dimension. Another relevant data is the similarity observed between patients looking for multidisciplinary treatment in specialized clinics and those users of traditional pain ambulatories.

Due to subjectivity and complexity involving neuropathic pain evaluation, it is necessary to know its clinical manifestations and to prepare the whole multidisciplinary team, especially Nursing, who plays a critical role in verbal investigation of painful patients.

**REFERENCES**


