

Nurse's knowledge of neuropathic pain

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Abstract

The aim of our study was to determine the levels of information and awareness of the nurses who work on neuropathic pain in the departments of physical medicine and rehabilitation, neurology and neurosurgery. A total of 60 nurses (20 per each department) who work in the physical medicine and rehabilitation, neurology and neurosurgery departments of Beyhekim State Hospital of Konya in Turkey took part in the study. The level of information and awareness of the nurses on neuropathic pain were assessed via a questionnaire prepared by specialists in the light of recent literature. The questionnaire was composed of 30 questions including the definition, symptoms, treatment and management of neuropathic pain. None of 60 nurses participating in the study were given any previous in-service training on neuropathic pain. According to the assessments, 80% of nurses (48) were found not to have sufficient knowledge about definition of neuropathic pain; 83.3% (50) about diseases causing neuropathic pain; 83.3% (50) about symptoms of neuropathic pain; and 90% (54) about management of neuropathic pain. The findings obtained from the nurses of these three departments showed no statistically significant relation. Our findings indicated that the knowledge of participants' about neuropathic pain who work in these three departments seriously lack of information. Informing nurses about neuropathic pain during in-service training will be an important step towards improving the quality of services provided.

Introduction

Neuropathic pain is pain caused by damage or disease which affects the somatosensory system.^{1,2} It may be associated with abnormal sensations called dysesthesia, and pain produced by normally non-painful stimuli (allodynia).^{1,2} Neuropathic pain may have continuous and/or episodic (paroxysmal) components. The latter are similar to electric shock.^{2,3} Common characteristics include burning or coldness,

pins-and-needles sensations, numbness and itching. In contrast, nociceptive pain is more commonly described as aching. Neuropathic pain may result from disorders of the peripheral nervous system or the central nervous system (brain and spinal cord).^{3,4}

Nurses are the largest group of healthcare professionals to provide continuity of care for the pain in both the acute and community settings.^{5,6} In some cases, nurses are the first health professionals to identify health problems in this group. They are also in the principal position of being in contact with clinicians.^{5,6} As nurses are directly responsible for providing interventions for pain relief, assessment and management of pain by nurses who take care for the neuropathic pain is a matter of great clinical importance.^{5,6}

Nurses dealing with neuropathic pain must have a sound knowledge of pain, its causes, manifestations, and relief strategies. They need to be able to assess neuropathic pain and be able to implement appropriate interventions for this kind of pain. It has been reported that most nursing researches in this area have focused on nurses' attitudes towards general pain or chronic pain.⁷⁻¹² We did not find any information concerning nurses' knowledge and skills in managing of neuropathic pain.

The aim of the study was to obtain baseline data concerning nurses' knowledge and experience of neuropathic pain and its clinical management. Research questions were as following: i) How informed are nurses about neuropathic pain and its management? ii) Do nurses who work in different clinical specialty areas differ in their knowledge of neuropathic pain? iii) Is there a relationship between the nurses' level of experience and their knowledge of neuropathic pain?

Materials and Methods

This descriptive study used a questionnaire survey design to assess nurses' knowledge of neuropathic pain. 20 from each department, a total of 60 registered nurses working in the physical medicine and rehabilitation, neurology and neurosurgery departments of Beyhekim State Hospital of Konya in Turkey took part in the study. The questionnaire was administered in April 2013. As this was a questionnaire-based study with nursing staff and without patient involvement, no approval by an ethics committee is required. The main ethical issues were respondents' right of self-determination, anonymity and confidentiality. Questionnaires with a participant information sheet on the nature of the study and a separate envelope were distributed to staff nurses. Completed questionnaires were recruited in sealed envelopes via a collection box placed in

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ward offices. Questionnaire data were kept confidential and respondents were assured of their right to withdraw at any time. Names of respondents were not recorded on the questionnaire, thus rendering the data anonymous.

Since no standard tool was available on knowledge of neuropathic pain, researcher developed his/her tools for the study. Relevant research and non-research literature were reviewed and experts were consulted for their opinions and suggestions in developing tools. Investigator's own experience also helped in developing the questionnaire.

The questionnaire was composed of 30 questions including 3 sections, which are the definition (in 10 questions), symptoms (in 10 questions), and treatment and management of neuropathic pain (in 10 questions). Questionnaire was restricted to two basic types of question: five closed-ended questions (e.g. Yes/No or True/False) for each section and five multiple choice questions for each section. Scoring: one point is awarded for each correct answer, and no point is deducted for wrong answers. Scores of 5 or above for each section was considered as sufficient level of knowledge. Also independent variables were the demographic variables such as age, gender, professional qualification and total years of experience.

Analysis of data

Data were entered and processed using the

Statistical Package for the Social Sciences (SPSS) software, English version 11.5. Kruskal-Wallis and χ^2 tests were used for statistical analysis and the significance level was set at $P \leq 0.05$. Pearson correlation coefficients were used for describing relationships between two variables.

Results

None of 60 nurses participating in the study was given any in-service training about neuropathic pain previously.

Demographic information of individuals can be followed at Table 1. There were no statistically significant differences between three clinics in demographical terms.

According to the assessments: 80% of the nurses ($n=48$) were found not to have sufficient knowledge about the definition of neuropathic pain, 83.3% (50) about the symptoms of neuropathic pain and 90% (54) about the management of neuropathic pain. Mean scores of each section and total questionnaire scores for 3 different departments are given in Table 2. There were no statistically significant differences between three departments in questionnaire scores (Table 2).

According to the results of the assessment questions, nurses in all three departments expressed their knowledge of neuropathic pain as below average (Figure 1). Approximately 75 percent of nurses successfully associated the *Burning Sensation* with the neuropathic pain as a symptom, but they did not show the same success in the other symptoms of neuropathic pain (Figure 2A). We observed that Nurses could not relate *Electric shock-like sensation* and *Freezing sensation* with neuropathic pain (Figure 2A).

Also approximately 70 percent of nurses successfully indicated the *Post Diabetic Neuralgia* as a cause of neuropathic pain, but they did not show the same success in other causes of neuropathic pain (Figure 2B). We observed that Nurses could not relate many diseases like Parkinson's disease, complex regional pain syndrome, alcoholic polyneuropathy, hemiplegia, phantom pain, multiple sclerosis, trigeminal neuralgia, etc. with neuropathic pain (Figure 2B).

About the neuropathic pain medications, nurses appropriated paracetamol and non-steroidal anti-inflammatory drugs (NSAIDs) in general (Figure 2C). Less than quintile of nurses appropriated gabapentin, pregabalin, tricyclic antidepressant or selective serotonin reuptake inhibitors (Figure 2C).

There were no statistically significant correlations between nurses' total scores and their education level, age and working experience.

Discussion and Conclusions

Main result of this survey showed that there was a significant deficit in knowledge of neuropathic pain and its management in the sample of registered nurses who were surveyed.

Pain has been identified as the *fifth vital sign* in clinical assessment and treatment and it is a very common complaint in patients who seek help of health professionals.¹³ Treatment usually requires trials of physical, pharmacologic, and surgical interventions to achieve resolution. Pain management is one of the most important aspects of patient care and is relevant to all nurses.^{10,12} Nurses spend more time with patients than any other member of the healthcare team. They play a critical, active, and very important part in controlling patients' pain and alleviating their suffering.^{10,11} Cohen noted that *although medical staffs are accountable for prescribing analgesia, much of the responsibility for the comfort of patients rests with nurses*.¹⁴ Therefore, nurses should have a solid foundation of knowledge about pain management and develop a positive attitude towards it to assess patients' condi-

Table 1. The basic information of the nurses.

Character	N.	%
Gender		
Male	4	6.7
Female	54	93.4
Educational background		
Nursing school certificate	28	46.6
Tertiary diploma	20	33.3
Baccalaureate degree	12	20.0
Clinical area		
Physical medicine and rehabilitation	20	33.3
Neurology	20	33.3
Neurosurgery	20	33.3
Age		
<20	6	10.0
21-30	24	40.0
31-40	22	36.6
41-50	8	13.3
>50	0	0
Work experience		
<5 years	7	11.6
6-10 years	12	20.0
11-20 years	15	25.0
21-30 years	11	18.3
>30 years	5	8.3

Table 2. Mean scores of questionnaire.

	PMR Neurology (n=20)	Neurology (n=20)	Neurosurgery (n=20)	P
Section 1 (Definition of NP)	3.95±2.25	4.20±1.82	3.75±2.34	0.123
Section 2 (Symptoms of NP)	3.75±2.59	3.95±2.39	4.00±1.94	0.217
Section 3 (Treatment and management of NP)	3.85±2.39	3.70±2.25	4.05±2.06	0.187
Total score	11.55±5.30	11.85±4.15	11.70±5.52	0.256

PMR, Physical Medicine and Rehabilitation; NP, neuropathic pain.

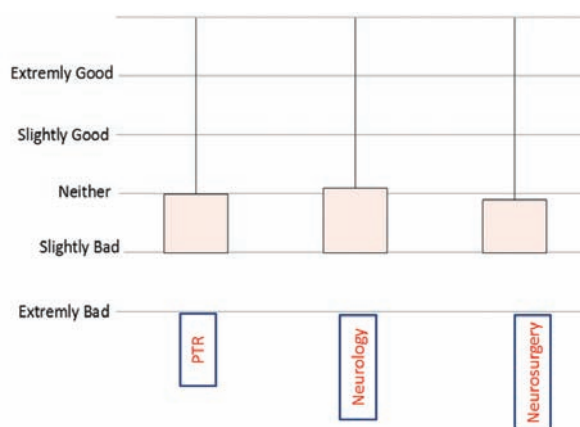


Figure 1. Nurses' self assessment of their level of knowledge.

tion and to deliver individualized care to each one so as to reduce discomfort and enhance the quality of life.^{15,16}

There have been few pain management research studies, focused on nursing staff working in different medical units. Wilson used a *pain knowledge survey* of 20 true/false statements to measure the knowledge basis of nurses.⁹ Their questionnaire was a self-administered questionnaire that also addressed lifestyle factors of patients in pain, inferences of physical pain, general attitudes and beliefs about pain management.⁹ They extrapolate that the specialist nurses had a more comprehensive knowledge base than general nurses; however, their knowledge scores did not appear to be related to their experience in terms of years within the nursing profession.⁹ Lui *et al.*¹⁰ aimed to investigate knowledge levels and attitudes regarding pain management among nurses working in medical units in Hong Kong and factors that might influence their knowledge and attitude.¹⁰ As a result of this study, they determined a prominent deficit in knowledge and attitude related to pain management.¹⁰ Yu and Petrini studied on knowledge of pain and pain management in elder people of Chinese nurses.⁷ They also used a questionnaire about pain and pain management with respect to elder.⁷ Findings of their study showed that there is a significant knowledge deficit in this area. Their study put out that there were no significant differences among nurses in terms of education background, position and whether or not there was attendance in an educational session on pain management.⁷

Slooman *et al.*⁸ wanted to investigate nurses' knowledge of pain and pain management with respect to elderly people in their study. They surveyed registered nurses in several general hospitals and nursing homes by a questionnaire related to their knowledge of pain management in the elderly.⁸ Also they indicate a significant knowledge deficit in this area and conclude that more education about pain management in elderly patients is needed for nurses.⁸ We believe that pain education was an essential part of a nursing school *curriculum* and it is important to identify whether student nurses are provided with adequate and accurate pain knowledge resulting in appropriate attitude towards pain relief. However, neuropathic pain management is not recently begun to receive serious scientific consideration. Currently, we did not find any studies about *nurse's knowledge of neuropathic pain*. In this case our study is the first in this heading.

The source of persistent pain may be nociceptive or neuropathic. Both utilize the same nervous system pathways for transmission, but significant physiological differences exist in the mechanism through which the body processes and resolves these painful stim-

uli.^{3,17} Nociceptive pain resulting from a known or obvious source (*e.g.* trauma, cancer metastasis, ischemia, arthritis) is often easy to identify. Neuropathic pain, however, may occur in the absence of an identifiable precip-

itating cause.^{4,17}

The International Association for the Study of Pain defines neuropathic pain as *initiated or caused by a primary lesion or dysfunction in the nervous system* and due to disordered

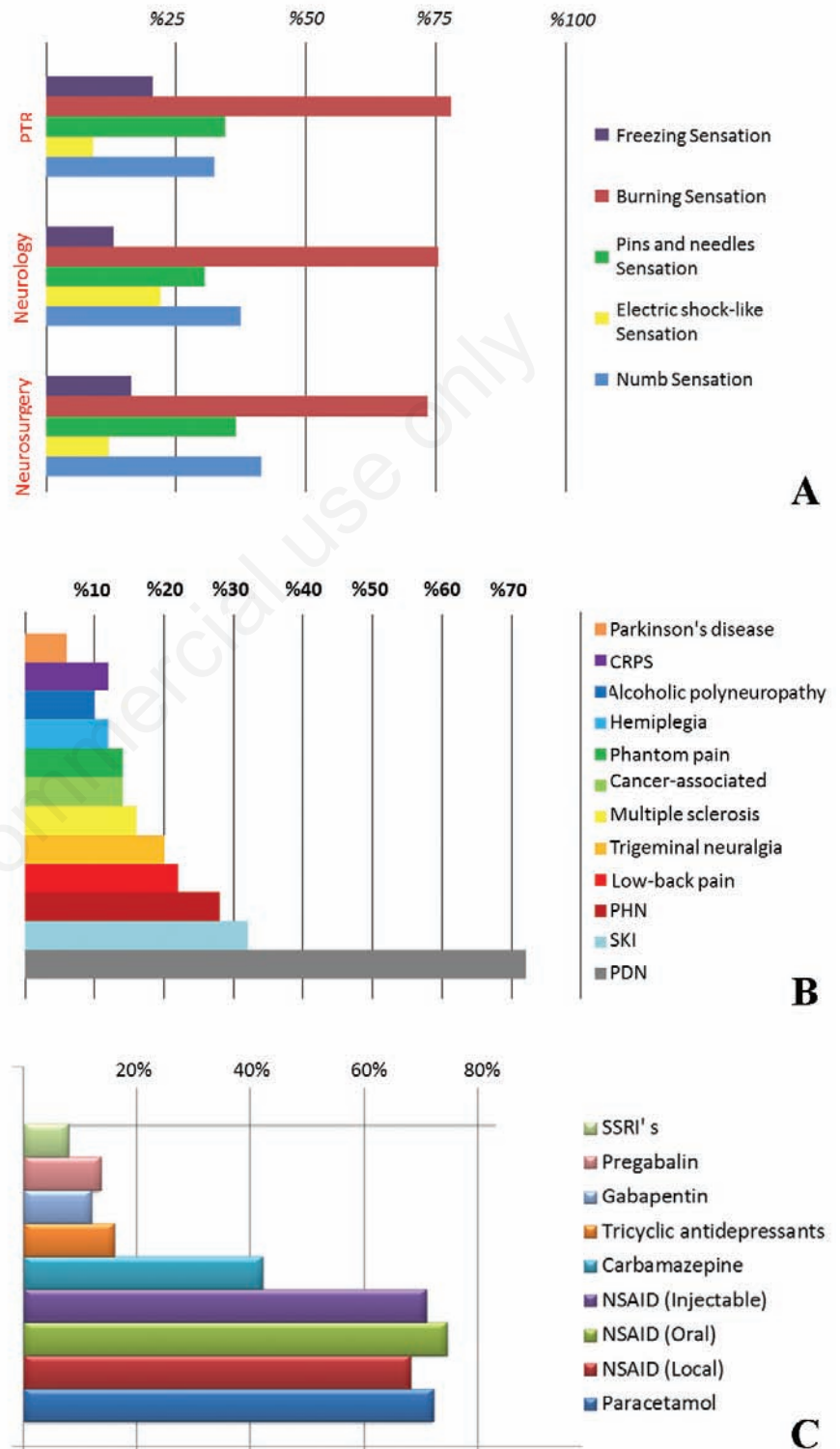


Figure 2. Percentage of knowledge about A) symptoms of neuropathic pain, B) neuropathic pain associated diseases, C) neuropathic pain treatment.

peripheral or central nerves.^{3,17} The disorder can be caused by compression, transection, infiltration, ischemia, or metabolic injury to neuronal cell bodies, or in combination.^{4,17}

Neuropathic pain may be classified as either peripheral or deafferentation (central) in origin.^{3,17} Examples of the former include diabetic peripheral neuropathy, post-herpetic neuralgia, antineoplastic therapy, tumor infiltration neuropathy, phantom limb pain, complex regional pain syndromes (reflex sympathetic dystrophy) and trigeminal neuralgia. Deafferentation syndromes resulting in neuropathic pain include multiple sclerosis, spinal cord injury, central post-stroke pain, and Parkinson disease.^{3,4} In our study, 70 percent of nurses were successfully associated the *Post Diabetic Neuralgia* as a cause of neuropathic pain, but they did not show the same success in other causes of neuropathic pain (Figure 2C).

In controlling neuropathic pain, the nurse needs to understand the psychological state of the patient, neuropathic pain, neuropathic pain treatment, deleterious effects of unrelieved neuropathic pain, and patient's socio-cultural background.

Results of our study were, of course, based on a relatively small sample of registered nurses (n=60) all of whom were drawn from Konya region. Thus, it is probably invalid to attempt to generalize the finding to the whole population of Turkish nurses. Nevertheless, the findings warn of the possibility that nurses may be inadequately educated in the management of neuropathic pain. A national cross-sectional survey would probably yield more definitive information.

Therefore, this survey suggests that nurses'

knowledge of neuropathic pain should be improved. Basic and continuing education of nurses in this area should be enhanced and their active participation in pain management should be encouraged.

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