

Frequency of chronic neuropathic pain and its association with depression in the elderly in Pakistan

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Abstract

Chronic neuropathic pain is secondary to other musculoskeletal pain. The following study aimed to determine the frequency of chronic neuropathic pain and its association with depression in the elderly. A cross-sectional survey was carried out on 306 participants at the National Institute of Rehabilitation Medicine (NIRM) Hospital, in Islamabad over a period of 6 months from September 2017 to February 2018. Population of ≥ 60 years of age with chronic pain for >6 months were included, whereas patients with malignant origin of pain, intermittent pain and psychological pain were excluded. Data was collected by using DN4 and DASS Questionnaires were analysed by SPSS. Of the 271 participants with the mean age of 66 ± 5.8 years, 216 (79.9%) were male. The frequency of patients suffering from chronic neuropathic pain was 53.9%. Data showed among the elderly a strong association of chronic neuropathic pain with anxiety and stress ($P < 0.05$), but not with depression ($P > 0.05$).

Keywords: Chronic Neuropathic Pain, Elderly, Depression, Anxiety, Stress.

DOI:10.5455/JPMA.302642229.

Introduction

International association for the study of pain defines neuropathic pain as "pain caused by a lesion or disease of the somatosensory system." Pain is considered to be the most common reason for patients to seek consultations from their doctors/physicians.¹ Neuropathic pain is generally chronic and is thought to be one of the most challenging conditions to treat. Chronic neuropathic pain is often associated with pathophysiological mechanism, but this pain is also underestimated in patients having no neurological lesion or disease. Patients generally with multiple conditions suffer from chronic neuropathic pain which in turn affects their quality of life. Patients suffering from neuropathic pain have a lower quality of life as

compared to the general population.² Neuropathic pain is considered to be the second most prevalent cause of chronic pain after musculoskeletal pain. Different environmental, pathogenetical and physical factors can further exacerbate and perpetuate the chronic pain, that can further lead to abnormal behaviour, adaptation and disability.³

Patients with untreated or unmanaged pain can suffer from anxiety, depression, fear, anger and various other cognitive issues. Sufferers of chronic pain use health care services 15 times more than non chronic ones.⁴ Pain is the cause of medically-related absenteeism in an organisation, basically causing a loss of more than 50 million work days in United States alone.⁵ The World Health Organisation's website defines depression as "A common mental disorder, characterised by persistent sadness and loss of interest in activities that you normally enjoy, accompanied by an inability to carry out daily activities, for at least two weeks. In addition, people with depression normally have several of the following: loss of energy; a change in appetite; sleeping more or less; anxiety; reduced concentration; indecisiveness; restlessness; feelings of worthlessness, guilt or hopelessness and thoughts of self-harm or suicide".⁶

Depression is very lethal as it affects the person's personal, family and social life, sleep habits and general health. The impact of depression has been compared with other medical disorders such as diabetes with regards to a person's functionality and well being. In very severe cases, the depressed person can also have symptoms of psychosis that includes delusions or hallucinations to the problem.⁷ With advancing age, sufferings of the elderly population in terms of comorbid conditions, chronic pain and depression, increases. Moreover, chronic pain is mostly misdiagnosed and neuropathic pain is not differentiated in our routine practice. So it is the need of hour to focus on the pain suffered by the elderly population.

Worldwide chronic neuropathic pain is considered to have drastic effects on the sufferers, as well as causing severe economic health burden on the state. A study reports the prevalence of neuropathic pain among the

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Asian population as 3.2%.⁸ A detailed review on the prevalence of chronic neuropathic pain can lead to greater awareness about its existence. It can promote precise identification and management of that pain. This study was designed to determine the frequency of chronic neuropathic pain and its association with depression among the elderly. The findings will help to formulate further strategies to cope with such chronic conditions in the elderly.

Methodology

In order to determine the frequency of chronic neuropathic pain and its association with depression among the elderly, a descriptive cross-sectional survey was carried out on a sample of 306 participants selected from National Institute of Rehabilitation Medicine, NIRM, Hospital and community dwelling elderlies. The study was conducted over a period of six months from September 2017 to February 2018. The sample size was calculated by using Raosoft software, keeping 95% confidence interval with 5% margin of error. Elderly population of ≥ 60 years having chronic pain for > 6 months were included in the study, whereas elderly population with malignancy, intermittent pain and psychological problems were excluded. A total of 390 patients were recruited as pre-eligibility criteria. Among them 54 did not fulfill the inclusion criteria while 30 patients refused to participate due to lack of interest or lack of time. Questionnaires were distributed to the remaining 306 patients, of which 35 patients did not fill their forms properly so they were excluded from the study as well. Study participants satisfying the inclusion criteria were formally recruited after informed consent through non-probability purposive sampling. Response bias was controlled by giving instructions to the participants in order to avoid misleading answers.

Data was collected directly from the subjects using two standardised questionnaires, which were, DN4 Questionnaire "Douleur Neuropathique 4"⁹ and Urdu Version of DASS Questionnaire "Depression, Anxiety and Stress Scale".¹⁰ DN4 (Douleur Neuropathique 4) is a clinician-administrated questionnaire composed of mainly 10 items that are used to find out details about patient's neuropathic pain. Seven of the items in the

questionnaire are related to pain quality that are sensory in nature (burning, painfully cold and electric shocks) and description of the pain (sensations of tingling, pins and needles, numbness, itching). The remaining three items were subject to physical examination of the patient. This worldwide scale is being used since 2005 as it provides the easiest way for clinicians to diagnose neuropathic pain. DASS stands for Depression, Anxiety and Stress Scale which was derived to assess the three negative emotional statuses. An Urdu version of DASS was used in order to obtain the data. This questionnaire is useful for both, the researcher and the clinicians as well and different research studies indicate that DASS is used equally by researchers, in clinics and in diagnosing the three negative emotions.

The data was analysed using SPSS V.21. First the descriptive statistics were performed. Categorical variables (i.e. gender and occupation) were presented as frequency/percentage. Chi Square test was used in order to find out the association of chronic pain with neuropathic characteristics with state of depression in the elderly.

Results

Out of a total of 271 participants, 216 (79.9 %) were male and 55 (20.3%) were female. The mean age of participants was (66 ± 5.8) years. According to the statistics, the elderly

Table: Comparative difference of chronic neuropathic pain in depression, anxiety and stress.

Variable	Neuropathic pain 146 (53.8%)	Non-Neuropathic pain 125 (46.12%)	P-Value
Stress	135 (92.5%)	93 (74.4%)	0.001
Anxiety	123 (84.2%)	82 (65.5%)	0.003
Depression	117 (80.1%)	83 (66.4%)	0.071

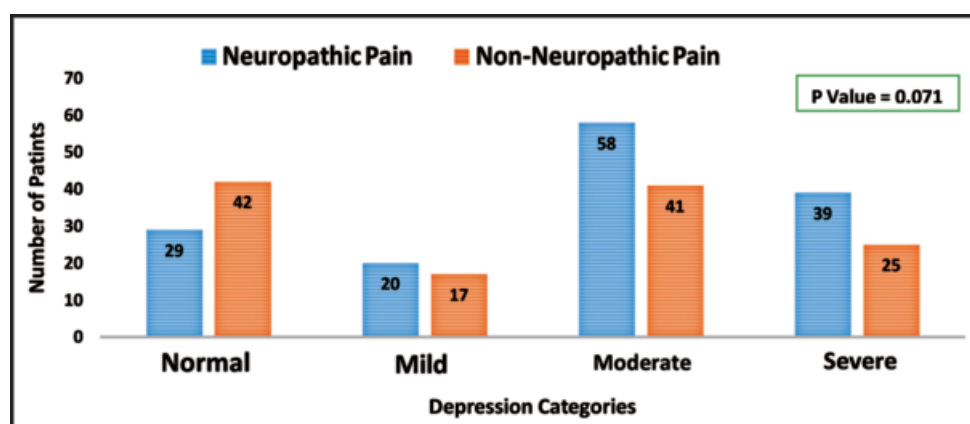


Figure: Association of chronic neuropathic pain with depression.

population having characteristics of neuropathic pain were more depressed compared to participants having non neuropathic pain. Figure-1 indicates a total number of 146 elderly with chronic neuropathic pain among whom 29 (19.86%) were normal, 20 (13.6%) had mild depression, 58 (39.7%) had moderate depression and 39 (26.7%) suffered from severe depression. Whereas there were 125 elderly with chronic non-neuropathic pain, among them 42 are normal, 17 had mild depression, 41 had moderate and 25 suffered severe depression.

Out of 271 participants 66 (24.4%) were normal, 38 (14%) had mild anxiety, 106 (39.1%) faced moderate anxiety and 60 (22.1%) were suffering from severe form of anxiety. Only one participant was suffering from extreme anxiety. A study done by Kate et al showed significant correlation between anxiety and chronic pain ($P=0.048$). The study showed high level of anxiety-related traits were present in patients with chronic pain. On the other hand, the same chronic pain patients had a high correlation with depression as well.¹¹ Regarding stress, out of total 271 participants 43 (15.9%) did not have any kind of stress, 31 (11.4%) participants had mild stress, 125 (46.1%) had moderate stress and 71 (26.2%) subjects were suffering from severe form of stress. Only one participant was suffering from extreme stress.

The frequency of depression among the elderly with chronic neuropathic pain was 80.1%, which indicated that 117 subjects out of a total 146 elderly with chronic neuropathic pain were having depression. The frequency of depression among those elderly with chronic non-neuropathic pain was 66.4%, which means that 83 subjects out of total 125 elderly were with non-neuropathic pain.

The statistics showed strong association of chronic neuropathic pain with stress as ($P=0.001$). There were 146 elderly with chronic NP, among them 11 were normal, 18 had mild stress, 75 were with moderate stress, 42 were suffering from severe form of stress. On the other hand, among 125 elderly with chronic non-neuropathic pain, 32 were normal, 13 were having mild stress, 50 were having moderate stress and 29 were suffering from severe stress. Only one of the elderly with chronic non neuropathic pain was suffering from a very severe form of stress.

Conclusion

Majority of the elderly participants exhibited symptoms of chronic neuropathic pain, which was found to be more prevalent among females than males. Moreover, it was

found to be significantly associated with anxiety and stress. It is suggested strategies be develop to reduce the occurrence of chronic neuropathic pain in order to enhance the quality of life among the elderly. Further detailed research is needed to explore other contributing factors to assess the magnitude of the problem. Incorporating assessment of different biomarkers can also give us the indepth results to draw stronger conclusions and enhance generalizability.

Disclaimer: None to declare.

Conflict of Interest: No conflict of interest among authors.

Funding Disclosure: Nothing to declare.

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