

## Prevalence Of Diabetic Neuropathic Pain"- A Descriptive Study

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### Abstract

**Background and Objectives:** Diabetic neuropathy is a prevalent, disabling disorder. The most common manifestation is distal symmetrical polyneuropathy. Currently, the only effective treatments are glucose control and pain management, there is no specific treatment for Diabetic neuropathy. The Objective of the study were to assess the prevalence of diabetic neuropathic pain among patients with diabetes mellitus at tertiary care hospital, Puducherry and To find out the association between the Diabetic Neuropathy Pain among the Patients with Diabetes Mellitus and their selected demographic variables. **Material and Methods:** Descriptive research design was adopted for the study. The population of the study were patients who were having diabetic neuropathy pain. 100 subjects were recruited as study population. Socio- demographic variables were collected by using structured questionnaire and neuropathic pain level was assessed by Modified Douleur Neuropathic pain scale. **Results:** Study subjects, patients with Diabetes mellitus nearly, 35(35%) were at Mild Pain, 45(45%) were at Moderate pain and 20(20%) were at Severe pain. **Conclusion:** The prevalence of diabetic neuropathic pain is high in Diabetic Population, study results suggests the need for intervention to minimize the diabetic neuropathic pain.

**KEYWORDS:** Diabetes mellitus and diabetic neuropathic pain.

### Introduction

Diabetes Mellitus has become a global epidemic affecting not only Western population, but also the Asian population including those of the Indian citizen. There are currently an estimated number of more than 62,000,000 people suffering from this disease in India. The prevalence of prediabetic population is even higher with estimated 77.2 million people in the year 2011 by Indian Council of Medical Research census. By the year 2030 it is estimated that there will be nearly 80 million Indians with Diabetes. It is associated with more than two fold excess mortality from cardiovascular disease, devastating microvascular complication affecting the eyes, kidneys and nerves as well as comorbidity including cancer, infection and psychosocial stress.

Diabetic Neuropathy is the commonest symptomatic complication of Diabetes. Prevalence of Diabetic peripheral Neuropathy is 15 to 40 percent in various study groups. It predisposes to foot ulceration and gangrene. Type 2 Diabetes Mellitus is characterised by long asymptomatic phase (ranges from 4 to 7 years) between the actual onset of hyperglycaemia and clinical diagnosis which may explain the relatively high prevalence of microvascular complication in newly diagnosed patients with Type Diabetes Mellitus. In view of poor awareness and lack of regular screening programmes, the initial presentation to the physicians is delayed frequently. This may predispose to increased rate of microvascular complication at onset.

There is an emerging evidence that Diabetic Neuropathy begins in the early stages of Diabetes pathogenesis. Hence this study aims to estimate the prevalence of diabetic neuropathy pain among patients with diabetes mellitus in tertiary care hospital, Puducherry

### Material And Methods

#### SETTING OF THE STUDY:

Setting of the study is Tertiary Care Hospital which is situated in Pillaiyarkuppam, 14 km from the city of Puducherry having NABH certification. It is a super specialty hospital with 1300 beds and all super specialty departments. The study was conducted in OPD's of Tertiary care hospital.

#### STUDY DESIGN:

Descriptive research design was adopted for the study

#### SAMPLE SIZE:

Total sample of 100 subjects were included in this study..

### Recruitment method:

Patients who visited the OPD's of tertiary care hospital with complaints of diabetic neuropathic pain were selected for this study. The people who are having neuropathic pain due to diabetes mellitus type- I and type-II, People who are willing to participate in the study, People above the age of 20 years. Those people who were having Hypothyroidism, Vitamin B12 Deficiency, and Patients on drugs having peripheral neuropathy were excluded from the study.

### Data collection:

After obtaining informed consent, the data were collected using structured instruments that included socio-demographic variables, Modified Douleur neuropathique pain scale to assess the level of neuropathic pain. The score for the level of pain was categorized as mild pain (1-5), moderate pain (6-10), and severe pain (11-15) and the vertigo symptoms as mild (1-20), moderate (21-40) and severe (41-60) symptoms. The data were collected in the OPD's of tertiary care hospital for 6 weeks.

### Statistical analysis:

Data were analysed using descriptive and inferential statistics using SPSS version 21. The independent 't' value on level of neuropathic pain the Mann-Whitney test was used to find out the prevalence of diabetic neuropathic pain among patients with diabetic mellitus.

### ETHICAL APPROVAL:

Anonymity and confidentiality were maintained throughout the study. Institutional Ethics Committee approval was taken before conducting the study. Informed verbal consent was obtained from each participant prior to interview.

### Results

**Table1: Frequency and Percentage distribution of the demographic variables on Diabetes Neuropathy Pain among the Patients with Diabetes Mellitus. (N=100)**

DEMOGRAPHIC VARIABLES		No of Patients	Percentage
AGE	20-40	25	25%
	41-60	40	40%
	>60	35	35%
GENDER	Male	55	55%
	Female	45	45%
RELIGION	Hindu	40	40%
	Muslim	30	30%
	Christian	24	24%
EDUCATIONAL QUALIFICATION	Not literate	17	17%
	Primary school level	44	44%
	Higher secondary level	25	25%
	Under graduate	14	14%
OCCUPATION	Unemployed	24	24%
	Business	54	54%
	Daily wages employed	16	16%
	Technical/ Professional	6	6%
MONTHLY INCOME IN RS	Below 5000	20	20%
	5000-10000	20	20%
	11000-20000	47	47%

	Above 20000	13	13%
<b>MARITAL STATUS</b>	Unmarried	20	20%
	Married	64	64%
	Widow/ Widower	14	14%
	Divorced	2	2%
<b>UNHEALTHY PRACTICES</b>	Smoking	10	10%
	Alcoholism	30	30%
	Betel nut chewing	56	56%
	Others	4	4%
<b>DIETARY PATTERN</b>	Vegetarian	20	20%
	Non-vegetarian	80	80%

Table 1 depicts, Among 100 study participants, The frequency and percentage distribution of age, it reveals that 40(40%) were in the age group of 41-60 years, 35(35%) were in the age group of >60 years and 25 (25%) were in the age group of 20-40 years and In Gender, it reveals that 55 (55%) were males and 45 (45%) were Females and In Religion, it reveals that 40(40%) were Hindu, 30(30%) were Muslims and 24(24%) were Christian and In Educational Qualification 44(44%)were at primary school level, 25(25%) were at higher secondary level,17(17%) were not literate, 14(14%) were undergraduate. In Occupation 54(54%) were doing Business, 24(24%) were unemployed, 16(16%) were daily wages employed and 6(6%) were technical and In Monthly Income 47(47%) were paid with Rs.11000-20000, 20(20%) were paid with Rs.5000-10000, 20(20%) were paid with Below 5000. In Marital Status 64(64%) were married,20(20%) were unmarried, 14(14%) widower/widow and 2(2%) were divorced, In Unhealthy Practices 56(56%) were had the practice of betal nuts chewing, 30(30%) were had the practice of alcoholism, 10(10%) were had the practice of smoking, 4(4%) were had the practice of other unhealthy practices and In Dietary Pattern 80(80%) were Non-vegetarian and 20(20%) were Vegetarian.

**Table 2: Assessment of diabetic neuropathic pain among the patients with diabetes mellitus N=100**

LEVEL OF NEUROPATHIC PAIN	Number of Patients	Percentage %
MILD PAIN	35	35%
MODERATE PAIN	45	45%
SEVERE PAIN	20	20%

**Figure.1: Assessment of diabetic neuropathic pain among the patients with diabetes mellitus**

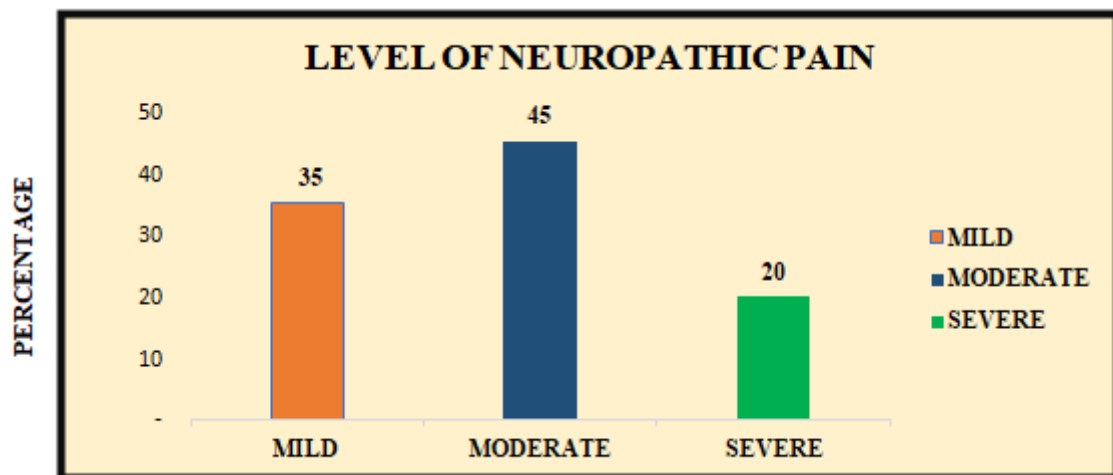


Table.2 and figure 1 depicts the level of neuropathic pain among patients with Diabetes mellitus nearly, 35(35%) were at Mild Pain, 45(45%) were at Moderate pain and 20(20%) were at Severe pain.

**Table 3: Association between the diabetic neuropathy pain among the patients with diabetes mellitus and their selected demographic variables.**

N=100

DEMOGRAPHIC VARIABLES		No of Patients	PERCENTAGE%	Mw/KW test	p-value
AGE	20-40	25	25%	2.0149	0.3651 NS
	41-60	40	40%		
	>60	35	35%		
GENDER	Male	55	55%	2.2682	0.1321 NS
	Female	45	45%		
RELIGION	Hindu	40	40%	1.6477	0.4387 NS
	Muslim	30	30%		
	Christian	24	24%		
EDUCATIONAL QUALIFICATION	Not literate	17	17%	3.6313	0.3041 NS
	Primary school level	44	44%		
	Higher secondary level	25	25%		
	Under graduate	14	14%		
OCCUPATION	Unemployed	24	24%	1.8326	0.6079 NS
	Business	54	54%		
	Daily wages employed	16	16%		
	Technical/ Professional	6	6%		
MONTHLY INCOME IN RS	Below 5000	20	20%	6.3573	0.0955 NS
	5000-10000	20	20%		
	11000-20000	47	47%		
	Above 20000	13	13%		
MARITAL STATUS	Unmarried	20	20%	1.4286	0.6988 NS
	Married	64	64%		
	Widow/ Widower	14	14%		
	Divorced	2	2%		
UNHEALTHY PRACTICES	Smoking	10	10%	3.6989	0.2959 NS
	Alcoholism	30	30%		
	Betel nut chewing	56	56%		
	Others	4	4%		
DIETARY PATTERN	Vegetarian	20	20%	1.2839	0.2572 NS
	Non-vegetarian	80	80%		

Table.2 depicts, The demographic variable namely age, gender, religion, educational qualification, occupation, monthly income, marital status, unhealthy practices, dietary pattern did not have any significant association with the neuropathic pain of patient with diabetes mellitus. Hence there is No association exists between the patient with diabetic neuropathic among patients with diabetes mellitus and their selected demographic variables.

## Discussion

Diabetes neuropathy most often damages nerves in the legs and feet. Depending on the affected nerves, diabetic neuropathy symptoms include pain and numbness in the legs, feet and hands. It can also cause problems with the digestive system, urinary tract, blood vessels and heart. Clinical guidelines recommend pain relief in PDN through the use of antidepressants such as amitriptyline and duloxetine, the  $\gamma$ -aminobutyric acid analogues gabapentin and pregabalin, opioids and topical agents such as capsaicin. Although there is no cure for diabetic neuropathy, use of these treatments can improve painful symptoms and prevent complications.

The total prevalence of neuropathy in our study is slightly higher than previously reported (~30%) (Callaghan et al., 2012) and increased with age and diabetes duration, a finding that is consistent with several population-based studies (Young et al., 1993; Jaiswal et al., 2017). For example, Young et al. identified a DPN prevalence increase with age from 5% in the 20-29 year age group (502 patients) to 44.2% in the 70-79 year age group (1012 patients), but without separating between T1D and T2D (Young et al., 1993). Jaiswal et al. reported in 1734 youth with T1D (age  $18 \pm 4$  years) an increase in DPN from 5% to 13% with rising diabetes duration from 5-10 to >10 years. In 258 youth with T2D (age  $22 \pm 4$  years), they reported a higher prevalence of 19% following 5-10 years of duration, which increased to 36% with >10 years duration (Jaiswal et al., 2017). However, these studies solely outline a rough increase without a more detailed sub classification and by this missing important information. In contrast, our data provide important clues how relevant early assessment for DPN in the clinical setting is. Patients aged below 41 years exhibit DPN in the approximately 12% of all cases. This raises markedly every decade (~29% for 41-55 years; ~39% for 56-70 years; >50% for >70 years). Thus, regular screening should be performed especially for patients aged >70 years irrespective of T2D duration. Apart from this, our data support screening for DPN at any age.

## Conclusion:

Diabetic Neuropathy is equally common in both Type I and Type II diabetes. It is more prevalent in elderly diabetes individuals of age more than 60 years. Both males and females are equally affected; there is no sex predilection for the occurrence of peripheral neuropathy. The prevalence of diabetic neuropathic pain is high in Diabetic Population, study results suggest the need for the early diagnosis of diabetic neuropathy and the need for intervention to minimize the diabetic neuropathic pain.

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