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Assess the pain severity in diabetic neuropathy associated with quality of sleep among type ii diabetes mellitus at selected rural area

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ABSTRACT

Diabetes mellitus is a group of metabolic disorders characterized by high blood sugar levels over prolonged period. Type II diabetes mellitus is one of the most common chronic diseases across the world and number of diabetic client's id on rise. Diabetic neuropathy is one of the major complications of diabetes mellitus In 2011, there were 366 million people with diabetes globally, and this is expected to rise to 552 million by 2030.According to the ICMR–INDIAB study, there are 62.4million people living with diabetes in India. Type II DM is a progressive disease and hampers the quality of life of the clients due to micro and macro vascular complications. Descriptive research design was adopted to assess the pain severity in diabetic neuropathy associated with quality of sleep among type II diabetes mellitus. This study is conducted in Kilachery and Nemam rural area in both males and females. The population includes people with type II diabetes mellitus who were present at the time of data collection. The sample for our study is who are all having diabetic neuropathy who meet the inclusion criteria. A sample of 50 type II diabetes mellitus clients residing in Kilachery and Nemam who met the inclusion criteria was selected using purposive random sampling.

Keywords: Pain severity, Diabetic neuropathy, Quality of sleep, Type II diabetes mellitus.

INTRODUCTION

Diabetes mellitus is a group of metabolic disorders characterized by high blood sugar levels over prolonged period [1]. Type II diabetes mellitus is one of the most common chronic diseases across the world and number of diabetic client's id on rise [2]. In 2011, there were 366 million people with diabetes globally, and this is expected to rise to 552 million by 2030. [3] According to the ICMR–INDIAB study, there are 62.4 million people living with diabetes in India. [4] Type II DM is a progressive disease and hampers the quality of life

of the clients due to micro and macro vascular complications. [5] Diabetic neuropathy is one of the major complications of diabetes mellitus. [6] Diabetic neuropathies are a family of nerve disorders caused by diabetes mellitus. Lower extremity disease, including peripheral neuropathy, foot ulceration, peripheral arterial disease, or lower extremity amputation, is twice as common in diabetic persons compared with non-diabetic persons and it affects 30% of diabetic persons who are older than 40 years. [7]

In persons with diabetes mellitus, the annual population-based incidence of foot ulcer ranges from 1.0% to 4.1%, and the prevalence ranges from 4% to 10%, this suggests that the lifetime incidence may be as high as 25%. [8] Nearly 45% of diabetes patients develop neuropathy during the course of their disease. In India, the peripheral neuropathy varied from 5 to 2400 per 10,000 populations (Trivedi. S 2017). Diabetic peripheral neuropathy is the most common complication of diabetes which can cause motor/sensory dysfunction in diabetic patients. [9] Foot ulcer directly contributes to morbidity and mortality of the patients with diabetes mellitus. [10] Diabetic neuropathy is one of the single strong factors associated with the development of foot ulcer, amputation and other foot complications. [11] In developing countries foot ulcer are one of the most feared and common complications of diabetes. [12] This is the major cause of disability, morbidity and mortality among diabetes patients. [13] It has been estimated that 15% (journal of diabetes) of all diabetes patients will develop foot ulcer at some point in their life. [14].

Distal symmetric sensory motor poly neuropathy or diabetic peripheral neuropathy (DPN) is the most common of all diabetic neuropathies. [15] Sensory distal polyneuropathy is a common complication of diabetes, affecting about 50% of the patients. [16]. It may have severe complications, including foot ulcers, amputation, and chronic pain. [17] Many patients with DPN experience neuropathic pain, typically characterized as burning, tingling, electric, sharp, shooting, and lancinating, which initially starts in both feet and may progress to involve calves, fingers, and hands (sticking and glove pattern). Risk factors associated with DPN include worsening glucose tolerance, older age, longer diabetes duration, drinking alcohol, and cigarette smoking. [18]

There is no cure for diabetic neuropathy. Treatment approaches include decelerating the progressive loss of nerve function through maintenance of glycemic control and pain management. Select antidepressant, antiepileptic and opioids were recently recommended as first line treatment for neuropathic pain. [19] However, dose-limiting side effects often reduce the effectiveness of these medications and leave DPN patients in continuing pain. Pain associated with the diabetic poly neuropathy is by definition, neuropathic, and thus a number of clinical characteristics various lesions or diseases of the nervous system. In the last few years, several clinical tools, in the form of simple questionnaires, have been developed and validated for the screening of neuropathic pain, for use in both clinical research and daily clinical practice. These tools based on the identification of specific pain qualities, merely most on the terms used by the patients to describe their pain (pain descriptor) and have been shown to have excellent sensitivity and specificity for the identification of neuropathic pain in various populations of patients. [20]

Thus, although not specific to diabetes, these clinical tools could improve the identification of painful diabetic neuropathy. Sleeping disorders in type 2 diabetic patients constitute risk factors for aggravating diabetes since they can affect the metabolic control through insulin resistance syndrome. Sleep deprivation has been shown to cause increased glucose levels due to reduced glucose metabolism and high cortisol levels. The inability of diabetic patients to maintain a normal sleep pattern can involve more than feeling tried the next day since the metabolic control, production of gluco corticoids and blood glucose control are affected leading to the development of insulin resistance.

OBJECTIVES

- To assess the level of neuropathic pain in clients with type II diabetes mellitus.
- To assess the quality of sleep
- To relate between pain severity of diabetic neuropathy and quality of sleep.

MATERIALS AND METHODS

Descriptive research design was adopted to assess the pain severity in diabetic neuropathy associated with quality of sleep among type II diabetes mellitus. This study is conducted in Kilachery and Nemam rural areas in both males and females. The population includes people with type II diabetes mellitus who were present at the time of data collection. The sample for our study is who are all having diabetic neuropathy who meet the inclusion criteria. A sample of 50 type II diabetes mellitus clients residing in Kilachery and Nemam who met the inclusion criteria was selected using purposive random sampling.

RESULTS:

Table- I: The study reveals that the majority of the people are age group of 40-45years 16(32%). Most of the people are females 26(52%). Most of them are home maker 17(34%). The population selected are of type II 50(100%). Most of them have diabetes mellitus are lesser than 5 years 16(32%).

Table-II: The study reveals that the majority of the people had moderate pain 21(42%), some have mild pain 19(38%), and some have severe pain 10(20%).

Table-III: The study reveals that the majority of the have good sleep, but there are still many steps you can take to make it even better 33(66%), some have problems & it's important to examine your sleep habits and see how you can make changes 13(26%),some of them has sleep in great shape, keep doing what you're doing and spread the word 4(8%), no one have sleep problems seem to be severe, you should definitely try to get some sleep0(0%).

Table-IV: The study reveals that the mean of the pain severity in diabetic neuropathy associated with quality of sleep is 21.76 and the standard deviation of pain severity in diabetic neuropathy associated with quality of sleep is 22.3

Table-II: Frequency and percentage distribution of the level of neuropathic pain in the selected study participants in Kilachery and Nemam.

S.NO	LEVEL OF PAIN	FREQUENCY	PERCENTAGE
1.	Mild pain	19	38%
2.	Moderate pain	21	42%
3.	Severe pain	10	20%

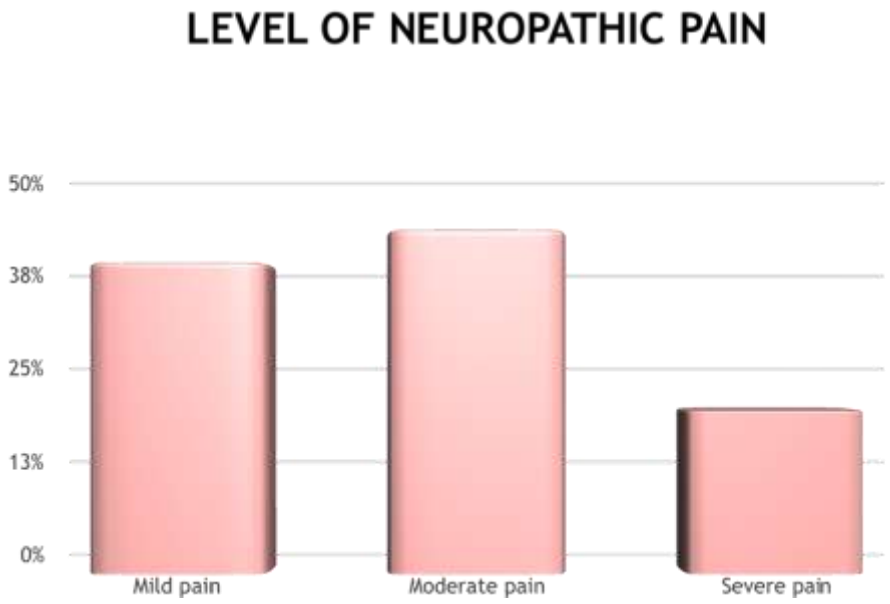

Figure-I

Figure-I: The above figure represents the percentage of level of neuropathic pain in the study participants. Majority of them have moderate pain 42%, some have mild pain 38% and least have severe pain 20%.

Table-III: Frequency and percentage of distribution of the quality of sleep in the study participants in Kilachery and Nemam.

S.no	Sleep quality questionnaire	Frequency	Percentage
1	How long does it take you to fall asleep? a)0-15min		
	b)16-30min c)31- 45min d)46-60min	17	188.8%
	e)>60min	13	144.4%
		10	111.1%
		2	22.2%
		8	88.8%
2.	If you then wake up one or more times during the		
	night, how long are you awake in total? a)0-15min	13	144.4%
	b)16-30min	14	155.5%
	c)31-45min d)46-60min e)>60min	7	77.7%
		7	77.7%
		9	100%
3.	If your final wake up time occurs before you intend to wake up, how much earlier is		
	this?	13	144.4%
	a) I don't wake up too early/Up to 15 min. early. b)16-30min. early	14	155.5%
	c)31-45min. early d)46-60min. early e)>60min.	8	88.8%
	early	10	111.1%
		5	55.5%
4.	How many nights a week do you have a problem with your sleep?		
	a)0-1		
	b)2	13	144.4%
	c)3	12	133.3%
	d)4 e)5-7	12	133.3%
		7	77.7%
		6	66.6%
5.	How would you rate your sleep quality? a)Very good		
	b)Good c)Average d)Poor e)Very poor	12	133.3%
		12	133.3%
		12	133.3%
		4	44.4%
		10	111.1%

Figure-II

Figure-II: This above figure shows that the quality of sleep of the diabetic neuropathic clients that the majority of them comes under the score 19-27 [66%], some of them have come under 10-18 [26%], some of them have come under 28-36 [8%] and no have come under 0-9 [0%].

Table IV: Mean and standard deviation of pain severity in diabetic neuropathy associated with quality of sleep in the selected study participants in Kilachery and Nemam

Pain severity in diabetic neuropathy associated with quality of sleep in type ii diabetes mellitus	Frequency
MEAN	21.76
STANDARD DEVIATION	22.3

DISCUSSION

This chapter deals with the results and discussion of the study. It has been discussed based on the objective of the study. The aim of the study was to assess the pain severity in diabetic neuropathy associated with quality of sleep in type II diabetes mellitus in Kilachery and Nemam, who met the inclusion criteria were selected for the study using purposive sampling technique. 50 samples with diabetic neuropathy has been taken for the study. The collected data was analyzed and discussed using descriptive and inferential statistics**.**

The study findings were discussed based on the objectives as follows

To assess the level of pain in diabetic neuropathy

The study reveals that the majority of the people had moderate pain 21(42%), some have mild pain 19(38%), and some have severe pain 10 (20%).

To assess the quality of sleep

The study reveals that the majority of the have good sleep, but there are still many steps you can take to make it even better 33(66%), some have problems& it's important to examine your sleep habits and see how you can make changes 13(26%), some of them has sleep in great shape, keep doing what you're doing and spread the word 4(8%), no one have sleep problems seem to be severe, you should definitely try to get some sleep 0(0%).

To relate between pain severity of diabetic neuropathy and quality of sleep

The study reveals that the correlation co-efficient R= -0.61. The study concludes that the level of severe pain in diabetic neuropathy affects the quality of sleep more when compared to mild and moderate level of pain.

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