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Research Article

DIABETIC PERIPHERAL NEUROPATHY AND RISK FACTORS A REVIEW

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ABSTRACT

Diabetes mellitus is one of the non-communicable diseases which comes in the forecast of increased morbidity. It is estimated that more than 422 million adults are living with diabetes mellitus as per the statistics of world health organization. Center for disease controlIn India states that nearly 30-50% of patients with diabetes mellitus which gradually develop diabetic peripheral neuropathy pain. Research literature was reviewed with regard to diabetic peripheral neuropathy and its associated factors.

A literature search was conducted with the following search terms, key-words and phrases- diabetic peripheral neuropathy, pain, neuropathic pain. 25 articles were reviewedonly 15 articles with the criteriaof clinical variables, demographic variables, and pain the following databases pubMed and Google Scholar.

Considerable debate exists regarding the contributing factors for the high prevalence of diabetic peripheral neuropathy in patients with diabetes mellitus,

From this review we infer, that there are various contributing factors which influence the increased prevalence of diabetic peripheral neuropathy painamong patients with diabetes mellitus. To identify the contributing factors for diabetic peripheral neuropathy pain.The identified contributing factors demographic variables clinical variables and pain. Research literature supports the necessity for Understanding the associated risk factors for PDN will go some way to resolving this and will also help to inform

INTRODUCTION

Diabetes mellitus is one of the non-communicable diseases which comes in the forecast of increased morbidity. It is estimated that more than 422 million adults are living with diabetes mellitus as per the statistics of world health organization.[1] the number may increase double times by 2030.[2]Center for disease controlIn India states that nearly 30-50% of patients with diabetes mellitus which gradually develop diabetic peripheral neuropathy pain.[3]out of diabetes mellitus population concerned. It is estimated 49% had clinical peripheral neuropathy and out of which 21% had painful symptoms during their life time.[3]

A literature search was conducted with the following search terms, key-words and phrases- diabetic peripheral neuropathy, pain, neuropathic pain. The search was performed in the following databases pubMed and Google Scholar.

This review commences with an overview of diabetic peripheral neuropathy, the evolution of the concept of diabetic peripheral neuropathy and criteria used to define diabetic peripheral neuropathy are reviewed. The review subsequently focuses on the prevalence of diabetic peripheral neuropathy in the general population as well as in patients with diabetes mellitus are described. Various contributing factors associated with diabetic peripheral neuropathy.

Objectives

Our aim was to assess the diabetic neuropathy pain and its contributing factors. Two different approach were utilized to conduct a systematic review, one focusing on prevalence of diabetic neuropathy pain and contributing factors.

METHODS

Conducted a systematic review out ofwhich 25 studies 15 paper were thoroughly reviewed. We primarily analyzed articles from 2010 to 2016 but included articles 2009- 2017 due to high citation index. We examined titles and abstract to relevant reports.

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Overview

"According to American diabetes association, state that diabetic neuropathy is nerve damage that occurs because of the metabolic derangement associates with diabetes mellitus.[4] Characteristics of diabetic peripheral neuropathy include loss of sensation, abnormal sensation, pain and paresthesias. The pain which is often describe as burning, cramping, crushing, or tearing, is usually worse at night and may occur only at the night time. The paresthesia may be associated with, burning and itching, sensation. The patient may report a feeling of walking on pillow or numbness feet light pressure from bed sheet cannot be tolerate.[5]

Risk factors are poor blood glucose control, but several other contributing factors come into play. For instance, age play a role, and duration of diabetes mellitus, the more likely it is that diabetic neuropathy can occur. Those who have diabetes for a longer duration are also risk, as there is a correlation can occur between diabetic peripheral neuropathy and duration of the condition.[6]

Prevalence of Diabetic Peripheral Neuropathy

Demographic Variables

A few studies conducted on prevalence of diabetic peripheral neuropathy reveal that sociodemographic variables, such as, age, gender, duration of diabetes mellitus were studies by most researchers.[7,8,9,10,11,12,13,14,15,16,17,18,19,20,21] Above 60 years patients influence on the diabetic peripheral neuropathy.[7] a meta- analysis found that gender is a significant factors for diabetic neuropathy pain, most of the reviews say male are more affected than female.[8] reported a higher prevalence of diabetic neuropathy among duration of diabetes mellitus, whereas (Dr.s. Afreen,) [8]They did not find a significant association with physical activity and diabetic peripheral neuropathy, Some authors have assigned scores based on the intensity of physical activity: regular, irregular, no physical activities. [9] They did not find a significant association with smoking and diabetic peripheral neuropathy,[10](table -3.1)

Table 3.1

Demographic variables	Defining level
Age:	56- 65 years age groups are high risk to develop peripheral neuropathy.
Sex:	Male are more affecting than female.
Duration of DM:	More than 10 years of diabetes mellitus having diabetic neuropathy.
Unhealthy habits	Defining level
Smoking	
• No smoker	No smoker
• Current smoker	
Physical inactivity	
• Regular	
• Irregular	No physical activities
• No physical activities	

Clinical Variables

The association between diabetic peripheral neuropathy and various diagnostic groups has been reviewed under the heading prevalence of diabetic peripheral neuropathy in patients with diabetes mellitus. Variables like BMI, Hypertension, blood glucose level, and triglyceride are reviewed here. (Nahla Khawaja,) in a study calculated the prevalence of diabetic peripheral neuropathy increased BMI rate can influence on the diabetic neuropathy pain. [9] a meta- analysis found that hyperglycemia is a significant factors for diabetic neuropathy pain.[8] reported a prevalence of diabetic neuropathy among comorbid illness (hypertension, dyslipidemia)[8].(table-3.2).

Table 3.2

Clinical variables	Defining level
BMI	BMI >30kg/m2 of body surface area5 .
Hypertension	GREATER THAN 140/90
Triglyceride	Greater than 1150 mg/dl
LDL	Men <40 mg. Women <50 mg/dl
Blood sugar level	FBS ≥126mg/dl PP2BS ≥200 mg/dl.

Pain Level

The association between diabetic peripheral neuropathy and various diagnostic groups has been reviewed under the heading prevalence of diabetic peripheral neuropathy in patients with diabetes mellitus. Some authors have assigned scores based on the intensity of diabetic neuropathy pain, no pain, mild, moderate, sever pain among them most of the patient having moderate and severe level of pain.[7](table- 4)

Table 3.4

Pain level	Defining level
• No	
• Mild	Moderate and severe level pain
• Moderate	
• Severe	

Summary

From this review it is apparent that studies on the international front are many, but there are relatively less Indian studies on the prevalence of diabetic peripheral neuropathy. The number of studies found in south India over this topic are especially sparse. India states that nearly 30-50% of patients with diabetes mellitus, gradually develop diabetic peripheral neuropathy.[3]It is estimated 49% had clinical peripheral neuropathy and out of which 21% had painful symptoms during their life time.[3]This review clearly depicts associated factors of diabetic peripheral neuropathy. This review also emphasizes the association of clinical variable and the risk of developing diabetic peripheral neuropathy pain.Based on this review, no clear pattern emerges with regard to the association between unhealthy practices variables and diabetic peripheral neuropathy. This review highlights the fact that patients who are physically inactive are closely associated with diabetic peripheral neuropathy. More research studies are associated factors which can be used for prevention. thus identifying modifying factors can be disseminated into the disseminated information to the general population for diabetic neuropathic pain.

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