Original Article

Peripheral Neuropathy

Peripheral Neuropathy: Incidence and Clinical Presentation in the Cases of Diabetic Mellitus

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ABSTRACT

Objective: To assess the incidence and clinical presentation of peripheral neuropathy in the cases of diabetic mellitus

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at Medicine Department of LUMHS with the duration of time February 2011 to January 2012.

Materials and Methods: Total 200 cases were chosen for this study after diagnosis of diabetic mellitus. All equitable laboratory investigations were carried out, along with HbA1C. All the cases were excluded from the study those were less than 5 HbA1c levels, history of any trauma leading to neurological deficit that can compromise assessment of sensory system along with history of renal failure. All the data regarding demographic characteristics, incidence and clinical pattern of the cases with peripheral neuropathy was entered in the predesigned Performa.

Results: Mean age of the cases was 56.3 ± 10.21 years. Mostly cases were noted from urban area 60.0%. 46.0% cases were smoker and mostly smoker were male, while 26(13.0%) patients (totally male) were with history of alcohol consumption. Mostly patients were poor socioeconomically. Incidence of the neuropathy was noted 60% further according to the classification, 16% cases were found with mild neuropathy, 21%were with severe while majority of the cases 32% were found with moderate neuropathy. According to the clinical presentation mostly cases were found with burning, 85.0%, Pain 66.6%, numbness 75.0%, while Sensitive touch, Itching, Foot ulcer, Muscle cramp and Tingling were found as 60(50.0%), 36(30.0%), 18(15.0%), 45(37.5%) and 51(42.5%) respectively.

Conclusion: In this study it is concluded that incidence of diabetic peripheral neuropathy is very high, and it increases with the increasing time of diabetes, uncontrolled diabetes and ignorance diabetes. Majority of the cases had found with sensory loss having foot ulcers, and they were unaware regarding this condition.

Key Words: Peripheral Neuropathy, Clinical Presentation, Diabetic Mellitus

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INTRODUCTION

Diabetes mellitus (DM) has come to pandemic extents around the world. Generally, diabetes was viewed as a big problem kept to created nations and rich individuals. Nonetheless, newly gauges propose that incidence of diabetes is increasing all around, especially in creating nations.[1] DM has turned into an critical wellbeing concern in South Asian along with an expected increment in the incidence more than 15.1% somewhere around 2000 and 2030.[1] Neuropathy is viewed as the most widely recognized micro vascular risk for in type I and II DM.[2,3] Neuropathic issue in diabetes can damage function of CNS, PNS and/or ANS.[4] Distal peripheral neuropathy (DPN), called diabetic polyneuropathy influences PNS and is by a wide margin the most well-known sort of neuropathy found in DM. In results functioning loss of peripheral nerves causes loss of defensive sensations and damage ability of the cases to see early or even obvious feet ulcerations. DPN is viewed as a principle reason of the amputation, and subsequently a huge reason for morbidity in diabetic mellitus.[5]

In spite of the fact that a typical and essential diabetic complication, neuropathy has not been concentrated on as frequently or as widely complication of macro vascular, retinopathy or nephropathy. What's more, the reported predominance estimated broadly between nations, to some degree because of the distinction in testing techniques and absence of accord on criteria of diagnosis.[6] Rising age, longer length of time of diabetes and diabetic poor control are very much perceived danger elements for DPN, while retinopathy, hypertension, weight, hyperlipidaemia, smoking, and microalbuminuria have additionally been ensnared as potential danger markers.[7] Most commonness and danger variable studies are from western created

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nations, while a linked data shortage from creating nations, especially from the region of the South-Asian.[8] In any case, an expected 80% of the worldwide populace with diabetes lives in creating nations. Population of the South-Asia specifically is well known with an expanded inclination for the illness. What's more, a few studies have shown that the danger of diabetes related removals and the incidence of ulcer of the diabetic foot UK is fundamentally lower in cases of the diabetes of Asian inception when contrasted with that of diabetic cases of European root.[9,10] This diminished risk in Asians was observed to be identified with the lower occurrence of peripheral artery and DPN. Ethnic contrasts and differential ecological presentation to hazard components in the various nations are extra proposed systems. This study was conducted to see the incidence and clinical presentation of peripheral neuropathy in the patients with diabetic mellitus.

MATERIALS AND METHODS

This cross sectional study was performed at medicine department of LUMHS with the duration of time February 2011 to January 2012. Total 200 cases were chosen in this study after diagnosis of diabetic mellitus, all the cases were selected above the age 30 years. All the cases with diabetic mellitus those were agree to participation were preferred. Full medical history of the cases with complete physical examinations was carried out. All equitable lab investigations were carried out, along with HbA1C. All the cases were excluded from the study those which were less than 5 HbA1c levels, any trauma leading to neurological deficit that can compromise assessment of sensory system along with history of renal failure. Neuropathy degrees were done on the basis of TCSS score utilized in the previous study as {no neuropathy: ≤5, mild: 6-8, moderate: 9-11 and severe: ≥12}.[11] All the data regarding demographic characteristics, incidence of and clinical presentation of the cases with peripheral neuropathy was entered in the predesigned Performa.

RESULTS

Total 200 known diabetic cases were selected in the study; patients mean age was 56.3 + 10.21 years. High difference was not found in male and female, as male 104(52.0%) and female 96(48.0%). Mostly cases were noted from urban area 120(60.0%), while 80(40.0%) cases were comes from rural areas. 92(46.0%) cases were smoker and mostly male, while 26(13.0%) patients (totally male) were with history of alcohol consumption. Mostly patients were poor socioeconomically. **Table 1.**

16% cases were found with mild neuropathy, 21%were with severe while majority of the cases 32% were found with moderate neuropathy. **Figure 1**

Table No. 1: Demographic characteristics of patients (n = 200)

Basic status	No. of patients/percentage
Age (Mean+SD)	56.3 + 10.21
Gender	
Male	104(52.0%)
Female	96(48.0%)
Residence	
Rural	80(40.0%)
Urban	120(60.0%)
Smoking status	
Yes	92(46.0%)
No	108(54.0%)
Alcohol consumption	
Yes	26(13.0%)
No	124(58.0%)
Obesity	
Yes	37(18.5%)
No	163(81.5%)

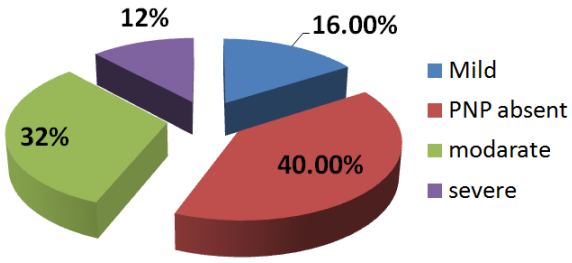

Figure No.1: Incidence of Peripheral Neuropathy. n=200

Table No. 2; Presentation of the cases with PN n=120

Presentation	Frequency/percentage
Burning	102(85.0%)
Pain	80(66.6%)
Sensitive touch	60(50.0%)
Numbness	90(75.0%)
Itching	36(30.0%)
Foot ulcer	18(15.0%)
Muscle cramp	45(37.5%)
Tingling	51(42.5%)

According to the clinical presentation mostly cases were found with burning, 102(85.0%), Pain was found in 80(66.6%), numbness was found in 90(75.0%), while Sensitive touch, Itching, Foot ulcer, Muscle cramp and Tingling were found as 60(50.0%), 36(30.0%), 18(15.0%), 45(37.5%) and 51(42.5%) respectively. **Table 2.**

DISCUSSION

Diabetes one of the common cause of different complications in the patients as renal disease, blindness and lower leg amputation even though the occurrence of different treatment approaches these all supply to the excess morbidity as well as mortality in the cases with diabetes.[12]

In this series mostly cases were found with old age above 40 years, only few cases were noted with age of less than 40, as well as mean age of the cases was found mean+SD 56.3 + 10.21. Similarly Iftikhar M. et al[13] reported mean age of the cases as mean+SD 49.52±7.933. Salzedas Muniz EC et al[14] reported mean age as 60.9 years. Al-Sarihin K et al[15] mentioned mean age of the cases as 56.19±14.31 years.

High difference was not found in male and female, as male 104(52.0%) and female 96(48.0%).

Mostly cases were noted from urban area 120(60.0%). 92(46.0%) cases were smoker and mostly smokers were male. A.B. Zafar et al[16] stated 49 male and 50 female in his study. Iftikhar M. et al[13] and Al-Sarihin K et al[15] also reported similar findings of gender, residence and smoking status.

PDN is probably main complication that's affects are concern to sensory, autonomic, and motor neurons of the peripheral nervous system. WHO reported that about fifty percent in diabetic patients develop neuropathy.[17] With increase time of diabetic, DN risks also increase. It is reported that 60 to 70% neuropathy developed in cases with diabetes.[18] Iftikhar M. et al[13] stated incidence of DN in diabetic patients was 187 (74.8%). Feray Soyupek *et al*[19] mentioned that in the study frequency of peripheral neuropathy was 80.4%. While in this study 60% patients were found with peripheral neuropathy, out of them 16% cases were found with mild neuropathy, 21% with severe while great part of the cases 32% were found with moderate neuropathy, similarly Davies M et al[20] found neuropathy as mild 20%, moderate 47%, or sever 33%.

Clinical pattern DPN is assorted that incorporates troublesome pain toward one side and there may be unfeeling foot on the flip side that likewise at danger of ulceration. In the advanced PDN the raised vibration and warm discernment edges that prompts degeneration and the sensory loss of total categories in peripheral nerve of the fibers. According to the clinical presentation in the present series out of 120 patients mostly cases were found with burning, 102(85.0%), Pain was found in 80(66.6%), numbness was found in 90(75.0%), Sensitive touch 60(50.0%), Itching 36(30.0%), Muscle cramp 45(37.5%) and Tingling were found in 51(42.5%) patients. Iftikhar M. et al[13] stated that Out of 250 patients 116 (46.4 %) cases noted with burning type pain and 114 (45.6%) were found to have numbness while 61 (24.4%) had tingling. Out of 250 patients 17 (6.8%) were found to have sharp pain and 55 (22%) had dullness. Out of 250 patients 44 (17.6%) had coldness. Katulanda P et al[21] reported patients with established diabetes the most common symptom was the presence of numbness 37.1%, followed by burning, aching or tenderness of the feet 32.3%, prickling sensation 29.7% and unsteadiness 25.5%.

Initial screening of PDN is basic in light of the fact that patients of all phases of neuropathy are at a more serious danger of creating uncaring foot ulceration. The group based study directed at Karachi, Pakistan stated that DPN developed in the around 40% cases, and out of them 4% foot ulcers developed.[22] likely in another study consider that development of diabetic neuropathy is 36%, and foot ulcer 10.4% in diabetes cases.[23]As well s in the present study PDN was found 60% and 15.0% patients were found with foot ulceration..

CONCLUSION

In this study it is concluded that diabetic peripheral neuropathy is increased with the increasing time of diabetes, causing uncontrolled and ignored diabetes and male/female are involved. Majority of the cases had found with sensory loss having foot ulcers, and they were unaware regarding this condition. Government should facilitate the diabetic patients regarding awareness and complete treatment, because in this study mostly patients were poor socioeconomically. More research is needed to better identification of factors associate to DPN.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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