



Prevalence of neuropathy and its associated factors among patients with diabetes attending specialist diabetes and endocrine centre in Taif, Saudi Arabia: Cross Sectional Study.

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Objectives

Peripheral neuropathy is one of the most common complications of both type 1 and type 2 diabetes. According to WHO, Saudi Arabia occupies on the second rank in diabetes among Middle East region, and seventh worldwide [1]. Peripheral neuropathy is the most frequent neurological disorder that a diabetic patient presents to their treating clinicians [2]. Prevalence estimates revolve around one in every five diabetic subjects, although variations occur due to heterogeneous settings and sampling techniques [3]. Population-based studies estimated that 22% of diabetic patients would have moderate-to-severe peripheral neuropathy at any point in time [4], and 50% would develop the condition over time [5]. This study aims to estimate the point prevalence of neuropathy among high-risk diabetic patients presenting at the diabetic and endocrine specialist center in prince Mansour hospital and evaluate its associated factors.

Method

This study was a cross-sectional questionnaire-based descriptive survey of a random sample of type 2 diabetic patients who attend specialist diabetes and endocrine centre in Prince Mansour Military Hospital between January and May 2020 in Taif, Saudi Arabia.

Results

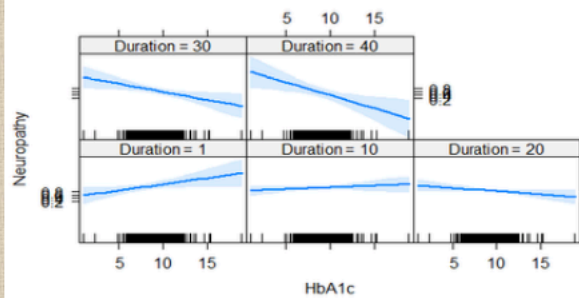
As detected by the monofilament test, the prevalence of neuropathy was (n = 291) 84.8% diabetic patients. Dyslipidaemia was associated with higher the risk for neuropathy by 98.4% (estimate = 0.6853, P = 0.04614). Additionally, lesser neuropathy risk was associated with cardiovascular disease by 62.1% (estimate = -0.9705, P = 0.03516), and retinopathy by 60.9% (estimate = -0.9401, P = 0.00782).

Interaction existed between the duration of diabetes and HbA1c levels in terms of their effect on peripheral neuropathy, as detailed in Table 1 and Figure 1. Clearly, in patients with a short duration of diabetes, a high HbA1c was associated with an increased probability of neuropathy. When interaction term is included, a positive association between neuropathy and both HbA1c (increased risk by 46.2%, estimate = 0.3798, P = 0.03222) and DM duration (increased risk by 19.6%, estimate = 0.1792, P = 0.04497).

Table 1 logistic regression results for interaction between HbA1c and diabetes duration on risk of peripheral neuropathy.

	Estimate	SE	Z value	P value
HbA1c level	0.37980	0.17734	2.142	0.03222 *
DM duration	0.17920	0.08938	2.005	0.04497 **
HbA1c-DM duration interaction	-0.02802	0.01006	-2.786	0.00534 **

HbA1c & Diabetes Duration interaction



As detected by the monofilament test, the prevalence of neuropathy was (n = 291) 84.8% diabetic patients. Over four out of every five diabetes patients has neuropathy.

Discussion & Clinical Implications

We found that over four out of every five patients have neuropathy complication. This is worrying as peripheral neuropathy could lead to an array of serious diabetic complications [6]. Our results far exceed the recent 30.1% neuropathy figure among primary care diabetic patients obtained by Sendi et al [7]. Clearly, our study was conducted among a high-risk group of attendees at the specialist diabetic centre. Literature from Saudi Arabia indicates an established link of diabetic peripheral neuropathy to the severity and duration of poor diabetic control [8]. In our investigation we identified dyslipidaemia to double the risk for neuropathy [9]. This confirms a direct nerve-damaging effect for high levels lipoproteins and lipids in the blood. We uncovered a positive association between neuropathy and both HbA1c and DM duration. It is widely accepted that hyperglycaemia worsens sensorimotor nerve dysfunction [12]. *References are available on request.*