

# THE PREVELANCE AND RISK FACTORS OF PERIPHERAL NEUROPATHY AMONG PATIENTS WITH TYPE 2 DIABETES MELLITUS IN EGYPT

Magdy Helmy Zikry Megallaa, Kamel Hemida Rohoma, Reem Mahmoud Fathalla, Dina Mohamed Ibrahim Salem

Department of Internal Medicine, Faculty of Medicine, Alexandria University

## INTRODUCTION

Diabetes has been described as “not only a health crisis; it is a global societal catastrophe”. It is becoming increasingly common globally, primarily as a result of the rising prevalence of type 2 diabetes. The global diabetes prevalence in 2019 is estimated to be 9.3%, equal to 463 million people with diabetes. Egypt is 9<sup>th</sup> of the top 10 countries for the number of adults with diabetes, with the current figure of 8.9 millions predicted to increase to 11.9 millions by 2030 and to 16.9 millions by 2045.

The main brunt of diabetic complications affects the vascular tree leading to both microvascular and macrovascular complications.

Diabetic neuropathies are the most prevalent chronic complications of diabetes affecting up to 50 % of diabetic patients. Diabetic peripheral neuropathy (DPN) is the most common chronic complication of diabetes and is the commonest cause of neuropathy worldwide accounting for about 75% of the diabetic neuropathies.

Current studies show that risk factors for diabetic peripheral neuropathy include the duration of diabetes, age, gender, family history of diabetes mellitus, glycemic control, smoking, and BMI and waist circumference, dyslipidemia, hypertension, presence of other diabetic vascular complications.

## AIM OF THE WORK

The aim of this work was to determine the prevalence and risk factors of peripheral neuropathy among patients with type 2 diabetes mellitus in a sample of diabetic subjects in Alexandria, Egypt.

## SUBJECTS AND METHODS

This cross sectional study was carried out on 400 adult ( $\geq 18$  years) subjects with type 2 diabetes mellitus. After giving their signed informed consents, all participants were subjected to Full history, Complete physical examination (including Blood pressure, BMI, Waist circumference, ABI, MNSI score, VPT, monofilament), fundus examination to diagnose diabetic retinopathy and Laboratory investigations (HbA1c ,TG, LDL-C, HDL-C, GFR, UACR).

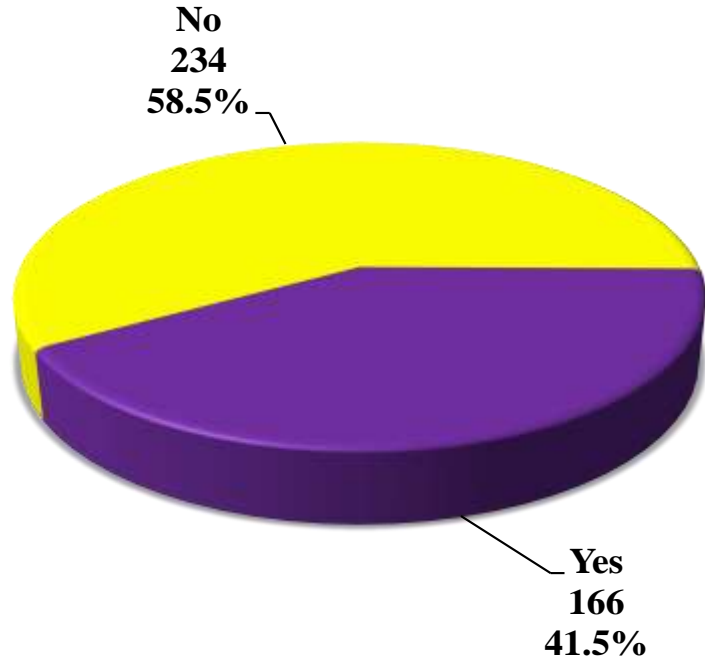
## RESULTS

**Table 1:** Distribution of the studied cases according to neuropathy based on MNSI (n = 400)

Neuropathy based on MNSI	No.	%
No	234	58.5
Yes	166	41.5

**Table 2:** Comparison between the two studied groups according to risk factors

	Total (n = 400)		Neuropathy based on MNSI				Test of Sig.	P
	No.	%	No.	%	No.			
	No.	%	No.	%	No.		%	
Duration of DM (years)								
Min. – Max.	0.08 – 30.0		0.08 – 30.0		0.08 – 30.0		U= 11372.5*	<0.001*
Mean ± SD.	10.40 ± 8.01		8.02 ± 7.34		13.75 ± 7.73			
Median (IQR)	10.0 (4.0 –16.0)		5.0 (1.0 – 15.0)		14.0 (8.0– 20.0)			
HTN								
No	181	45.3	144	61.5	37	22.3	$\chi^2$ = 60.384*	<0.001*
Yes	219	54.8	90	38.5	129	77.7		
BMI (kg/m2)								
Under weight (<18.5)	0	0.0	0	0.0	0	0.0	$\chi^2$ = 59.640*	<0.001*
Healthy weight (18.5 – <25)	88	22.0	83	35.5	5	3.0		
Over weight (25–<30)	98	24.5	48	20.5	50	30.1		
Obese (≥30)	214	53.5	103	44.0	111	66.9		
Type of treatment								
OAD	170	42.5	119	50.9	51	30.7	16.934*	<0.001*
Insulin	208	52.0	102	43.6	106	63.9		
OAD + insulin	22	5.5	13	5.6	9	5.4		
TG								
Min. – Max.	26.0 – 1167.0		26.0 – 1167.0		50.0 – 377.0		U= 16603.0*	0.013*
Mean ± SD.	144.73 ± 94.57		143.14± 111.27		146.97 ± 64.29			
Median (IQR)	134.0 (86.0 – 183.50)		121.0 (84.0 – 174.0)		156.5 (90.0 – 189.0)			
Nephropathy								
No	174	43.5	112	47.9	62	37.3	4.368*	0.037*
Yes	226	56.5	122	52.1	104	62.7		
HbA1c								
Min. – Max.	5.10 –15.30		5.10 – 15.30		5.60 –13.50		t= 2.120*	0.035*
Mean ± SD.	8.53 ± 2.13		8.34 ± 2.26		8.80 ± 1.92			
Median (IQR)	8.10 (7.20 – 9.25)		8.0 (120.0– 175.0)		8.30 (7.50 – 10.10)			
Retinopathy								
No	239	59.8	176	75.2	63	38.0	56.065*	<0.001*
Yes	161	40.3	58	24.8	103	62.0		
PVD								
No	320	80.0	213	91.0	107	64.5	42.841*	<0.001*
Yes	80	20.0	21	9.0	59	35.5		



**Figure:** Distribution of the studied cases according to neuropathy based on MNSI (n = 400)

## CONCLUSION

In conclusion, the prevalence of DPN was 41.5% of the studied patients (28.9% males, 71.1% females).

Risk factors of DPN were positive family history of DM, long duration of DM, hypertension, obesity, insulin treatment, high TG level, albuminuria, nephropathy, high FBG, high HbA1c, retinopathy and PVD.