Original Research Paper

Volume - 7 | Issue - 5 | May - 2017 | ISSN - 2249-555X | IF : 4.894 | IC Value : 79.96

Medicine

Electrophysiological evaluation of subclinical neuropathy in diabetes patients

Dr.Chezhian	MD DM (Neuro),Department of Neurology and Neurosurgery Madurai Medical College Madurai-20
Dr.Srisaravanan	MS MCh (Neuro), Department of Neurology and Neurosurgery, Madurai Medical College, Madurai-20
Dr.Ramu	MD DM(Neuro), Department of Neurology and Neurosurgery, Madurai Medical College, Madurai-20

KEYWORDS : Diabetes mellitus-Peripheral Neuropathy-Nerve conduction study-compound Motor action Potential (CMAP)-sensory nerve action potential(SNAP)-Glycemic control

Introduction:
Diabetes mellitus is a common disorder. The risk of developing symptomatic neuropathy in patients without symptoms or signs at the time of diagnosis is 4 to 10 % by 5 years and upto 50% by 25 years. Nerve conduction abnormalities exist in the subclinical stage of neuropathy and early diagnosis can lead to reduction in morbidity.

Aim of the study:
To study the effect of diabetes in motor and sensory nerve conduction velocity of peripheral nerves.

To observe the functional status of peripheral nerve in asymptomatic diabetes patient.;

Materials and methods
30 patients diagnosed as diabetes who did not have symptomatic neuropathy were recruited.

Both male and female patients in the age group 20 to 60 years were chosen. Patients with other significant risk factors for neuropathy like liver or kidney disease, hypothyroidism, toxic exposures, alcoholism etc were excluded. Also patients with coexisting radiculopathy due to cervical spondylosis were excluded.

Data collection and analysis:
Nerve conduction studies - motor and sensory conduction were done in all patients and data recorded in a standardized proforma.

Results:
Age: out of 30 cases, 7 were below 38 years of age, 16 were between 39 to 50 years of age. 7 cases were above 50 years of age.

Table 1 Age incidence

Age	No	%
<38	7	23
39-50	16	53
>50	7	23

Duration of diabetes
Table 2 Duration

Duration	cases	%
<2	10	33
2-5	15	50
>5	5	16.7

CMAP Media nerve:
out of the 30 cases, 40% showed abnormal median CMAP

Table 3 Compound Motor Action Potential Median Nerve

CMAP	NO	%
NORMAL	18	60
AXONAL	5	16.7
DEMYELINATING	7	23.3
	30	100

Out of the abnormal cases, majority of them had involvement of right median nerve

CMAP ULNAR NERVE
Out of 30 cases 27.7 cases showed abnormal ulnar CMAP.

Table 4 Compound Motor Action Potential Ulnar Nerve

ULNAR	NO	%
NORMAL	22	73.3
AXONAL	4	13.3
DEMYELINATING	2	6.7
BOTH	2	6.7

CMAP Peroneal nerve:
Out of 30 cases 9 showed involvement of Peroneal nerve

Table 5 Compound Motor Action Potential Peroneal Nerve

Peroneal	no	%
NORMAL	21	70
AXONAL	5	16
DEMYELINATING	4	13.3

CMAP TIBIAL NERVE

Table 6

Table 6		
TIBIAL	NO	%
NORMAL	22	73.3
AXONAL	3	10
DEMYELINATING	4	13
BOTH	1	3

SNAP:
Out of 30 cases 20 cases (66%) showed abnormal median SNAP, 4 CASES (13.3%) showed abnormal ulnar SNAP AND 22 cases (70%) showed abnormal sural SNAP.

Final interpretation:
Out of 30 patients only 4 had normal conduction study.

Discussion and conclusion:
This study shows that electrophysiological evidence of neuropathy is common in asymptomatic patients with diabetes. Nerve conduction study can be used as a screening tool to diagnose neuropathy in the subclinical changes and should be considered at risk category for aggressive glycemic control by pharmacological and lifestyle modifications.