



TO STUDY THE RELATION OF ASYMPTOMATIC CORONARY ARTERY DISEASE AND ASSOCIATED AUTONOMIC NEUROPATHY.

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Study Designed: Observational Study

ABSTRACT:

Background:

This is a cross sectional study on the patients of type 2 diabetes mellitus without clinical and electrocardiographic evidence of coronary artery disease attending diabetic clinic, cardiology and medicine outpatient departments. AIIMS, Bhopal and were enrolled in present study.

Result:

This table represents the incidence of diabetic neuropathy on systemic examination with regard to duration of diabetes mellitus. Out of 60 patients 21(36.66%) had clinical signs of peripheral neuropathy and 15(26.66%) had signs of autonomic neuropathy. Of diabetes of equal to or less than 5 years duration 2 patients revealed signs of peripheral neuropathy while 0 had evidence of autonomic neuropathy. 6 patients with diabetes of duration between 6 and 10 years had signs of peripheral neuropathy while 3 had autonomic neuropathy. 9 patients with diabetes of duration between 11 and 15 years had signs of peripheral neuropathy while 8 had signs of autonomic neuropathy. All the 4 patients with duration of diabetes between 16 and 20 years had signs of peripheral neuropathy as well as autonomic neuropathy.

Conclusion:

Diabetics with clinical peripheral neuropathy and autonomic neuropathy had higher incidence of asymptomatic coronary artery disease, suggests that in asymptomatic diabetic patients, CAN is a better predictor of major cardiac events.

Keywords: Asymptomatic, CAD, Autonomic & Neuropathy.

Introduction

CAD is the leading cause of morbidity and mortality in diabetic patients and frequently manifests itself silently and prematurely. Thus a classical cardiovascular risk factor is 'HYPERGLYCEMIA'. Clinical evidence demonstrates that the hyperglycemia in diabetes correlates well with risk and severity of microvascular and macrovascular complications and improving hyperglycemia reduces this risk. Thus 'DEADLY TRIANGLE' of coronary artery disease, cerebrovascular disease and peripheral vascular disease is the major cause of morbidity and mortality in the diabetic population. CAD can

be asymptomatic in diabetes and may present with sudden death, myocardial infarction, arrhythmia, silent myocardial ischemia or heart failure. The association between diabetes and asymptomatic coronary artery disease.¹

Cardiac autonomic neuropathy (CAN) has been found in 30-70% of unselected diabetic patients. Several longitudinal studies have suggested that CAN is associated with adverse outcomes², mainly of cardiac origin. SMI might be involved in the poor prognosis associated with CAN. However, the relationship between SMI and CAN is not clearly established³, and there are no data

available on the respective prognostic value of CAN.⁴

Material & Method

This study was conducted in AIIMS, Bhopal during the period of July 2017 to July 2018.

Study design

Patients of type 2 diabetes mellitus without clinical evidence of coronary artery disease, normal resting 12 lead electrocardiogram and without past history of ischaemic heart disease, cerebrovascular accidents and hypertension who provided consent were included in the study.

Source of data

Total of 60 patients were included in the study. The sample was calculated considering 80% of the average number of patients of type 2 diabetes mellitus without clinical evidence of coronary artery disease attending diabetic clinic, cardiology and medicine OPD, AIIMS, Bhopal.

SELECTION CRITERIA

Inclusion criteria

1. Patients of type 2 diabetes mellitus without clinical evidence of coronary artery disease.

2. Normal resting 12 lead electrocardiogram.
3. No past history of ischaemic heart disease, CVA and hypertension.

Exclusion criteria

1. Patients having symptoms and signs suggestive of ischaemic heart disease.
2. Abnormal resting 12 lead electrocardiogram.
3. Presence of risk factors known to predispose to ischaemic heart disease.
 - Hypertension.
 - Evidence of coronary artery disease (prior myocardial infarction or coronary artery bypass surgery)
 - Vascular disease (cerebrovascular accident, peripheral vascular disease).
 - Cigarette smoking.
 - Patients on oral contraceptive pills.

Results

TABLE 01: CLINICAL SIGNS OF NEUROPATHY

Duration of DM	No. of patient	Peripheral neuropathy	Autonomic neuropathy
<5	34	2	0
6-10	12	6	3
11-15	10	9	8
16-20	4	4	4
Total	60	21	15

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TABLE 2: DISTRIBUTION OF PATIENTS ACCORDING TO SEVERITY OF TMT RESULT AMONGST PATIENTS WITH & WITHOUT AUTONOMIC NEUROPATHY

	Mildly positive	Moderately positive	Strongly positive	Total
With autonomic Neuropathy	2	5	5	12
Without autonomic Neuropathy	2	4	2	8
Total	4	9	7	20

In group with presence of autonomic neuropathy 2 were mildly positive, 5 were moderately positive & 5 were strongly positive for provokable ischemia. In group without autonomic neuropathy 2 were mildly positive, 4 were moderately positive & 2 were strongly positive for provokable ischemia.

Discussion

Peripheral neuropathy is a common microangiopathic complication of diabetes. In the present study, it was found that 59% (13/22) with peripheral neuropathy had symptomatic coronary artery disease while only 18.42 (7/38) without peripheral neuropathy had asymptomatic coronary artery disease.⁵

Thus, in our study diabetics with peripheral neuropathy had a greater incidence of asymptomatic coronary artery disease than those without it (59% vs 18.42%). Our findings are in agreement with one study¹⁷ who found that silent myocardial ischemia was associated with presence of diabetic polyneuropathy. One study⁶ found that 61.5% subjects with peripheral neuropathy had silent myocardial ischemia while only 11.1% without peripheral neuropathy had silent myocardial ischemia.⁷

Conclusion

Diabetics with clinical peripheral neuropathy and autonomic neuropathy had higher incidence of asymptomatic coronary artery disease, suggests

that in asymptomatic diabetic patients, CAN is a better predictor of major cardiac events.

References

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