International Journal of Science and Research (IJSR)
ISSN: 2319-7064
ResearchGate Impact Factor (2018): 0.28 | SJIF (2018): 7.426

Early Detection of Microvascular Complications in Asymptomatic Type 2 Diabetes Mellitus Patients and its Corelation with Glycosylated Haemoglobin

Gyanendra Singh, Utkarsh Bhattad, Himani Singh

Abstract: ***This study was conducted to find out diabetic nephropathy in asymptomatic patients of type 2 diabetes mellitus and its correlation with glycosylated haemoglobin. By identification of such patients, the chronic microvascular complications of diabetes mellitus can be curtailed at an early stage with best possible treatment outcome. The study was observational, descriptive conducted in the Department of General Medicine, D.Y Patil Hospital, Nerul, Navi Mumbai among 150 consecutive patients of Type 2 DM patients with duration of diabetes more than 6 months from the time of diagnosis over a period of Feb 2018- August 2019. Blood samples for fasting, postprandial blood sugar and renal function were collected; urine analysis for proteinuria; and HbA1c were carried out. All the subjects were evaluated for other confounding factors like hypertension. The mean age of the study population was 52.89 ± 5.84 with a range of 40 to 60 years. The study population comprised of 104 (69.3%) male patients and 46 (30.7%) female patients. The mean fasting, post prandial and HBA1C values among the study population was 195.64 ± 83.69, 259.10 ± 87.13 and 9.41 ± 2.85 respectively. The results of this study showed that the prevalence of diabetic nephropathy among study population were (28.7%). In our study diabetic nephropathy had statistically significant association with both HbA1c (p-0.013. The findings highlight the requirement for regular health evaluation and laboratory workup especially to look for asymptomatic hyperglycaemia to detect and treat DM in early stage and prevent complications.***

Keywords: Nephropathy, Chronic Microvascular complications, Prevalence

1. Introduction

Diabetes is a syndrome characterised by chronic hyperglycaemia and disturbance of carbohydrate, fat and protein metabolism associated with absolute or relative deficiencies in insulin secretion and/or insulin action (1). It is one of the major cause of vascular disease affecting nearly all blood vessel types and sizes. Indeed, vascular complications are responsible for most of the morbidity, hospitalizations, and death that occur in patients with diabetes mellitus. Type 2 diabetes mellitus is one of the prevalent diseases increasing health burden in both developed and underdeveloped countries. Prevalence of diabetes is noted to be higher in Asians (people from Pakistan, India, and China) as compared to Caucasians. Recent WHO reports shows that overall prevalence of diabetes mellitus in India is 7.3% conducted in 15 states by Anjana RM et al, 2017(2).

The common threat of this disease is poor glycemic control predisposing to micro- and macro-vascular complications. Microvascular complications include neuropathy, retinopathy, and nephropathy. Macrovascular complications are coronary artery and peripheral artery disease. During presymptomatic phase of hyperglycemia neuropathy has been seen in up to 44.24%, retinopathy in up to 24% and nephropathy in up to 50% .individuals (3). Primary prevention plays a great role in diabetes management. This study was planned with the intention to strengthen primary prevention in diabetic care. The aim was to identify patients with asymptomatic microvascular complications of type 2 Diabetes mellitus. (nephropathy, retinopathy and Diabetic neuropathy.) By identification of such patients, the chronic microvascular complications of diabetes mellitus can be curtailed at an early stage with best possible treatment outcome.

2. Methodology

This observational descriptive study was conducted in the Department of General Medicine, D.Y Patil Hospital, Nerul, Navi Mumbai on 150 consecutive patients presenting with asymptomatic chronic microvascular complications of diabetes mellitus in OPD during the period from Feb 2017 – Aug 2018. Approval of Institutional Ethics Committee and a written consent was taken before start of the study. The inclusion criteria were: Absence of neurological symptoms like tingling, numbness, burning pain and weakness, admitted patients with age group - 31 to 60 years with no obvious visual problemsand no history of previous renal diseases. A detailed history of the patient was taken and through clinical examination with relevant investigations like CBC, LFT, RFT, Blood urea, Serum creatinine, Sr. Bilirubin, SGOT, SGPT, ALP, Serum protein level, Blood sugar level; fasting and post prandial, Glycosylated hemoglobin level, Lipid profile, Urine examination, USG abdomen (in selected cases), Urine microbiologyswas done. ADA criteria was used for the diagnosis of DM. All patients were treated according to the standard guidelines of the American Diabetes Association and the institution protocol where required.

2.1 Statistical Analysis

The descriptive and analyical statistics were done. All the data was analyzed using statistical software (IBM SPSS V20.1, IBM Corporation, Armonk, NY, USA). Results was expressed as mean ± standard deviation and proportions. Comparisons between categorical variables was performed with Fisher's exact and chi-square tests. The statistical significance was determined at $p<0.05$.

3. Results

Table 1: Demographic details of the study population

Variables

Age in months	Mean	S.D.	Range
(n=150)	52.89	5.84	32-60
Sex	**n**	**%**	
Male	104	69.3	
Female	46	30.7	

Variables	Fasting	Post Prandial
N	150	150
Mean	195.64	259.10
S.D.	83.69	87.13
Minimum	84.00	111.20
Maximum	497.00	500.00

References

[1] American Diabetes Association. Diagnosis and Classification of Diabetes Mellitus. Diabetes Care. 2009 Jan; 32(Suppl 1): S62–S67.
[2] Anjana RM, Deepa M, Pradeepa R, Mahanta J, Narain K, Das HK, et al. Prevalence of diabetes and prediabetes in 15 states of India: results from the ICMRINDIAB population-based cross-sectional study. Lancet Diabetes Endocrinol. 2017 Aug; 5(8):585-596. doi: 10.1016/S2213-8587(17)30174-2. Epub 2017 Jun 7.
[3] Fayaz Ahmad W, Rakesh K Koul et al. Prevalence of Microvascular Complications in Newly Diagnosed Type 2 Diabetes Mellitus. International Journal of Scientific Study. 2016 Jan; Vol 3 Issue; 102-106.