

## Clinico-Investigative Profile of Newly Diagnosed Type II Diabetes Mellitus Patients

Gyan Bhushan Raman<sup>1</sup>, Atul Baid<sup>2</sup>, Vandana Kumari<sup>3</sup>

<sup>1</sup>Assistant Professor, Department of Medicine, Mata Gujari Memorial Medical College, Kishanganj, Bihar, India

<sup>2</sup>Professor, Department of Medicine, Mata Gujari Memorial Medical College, Kishanganj, Bihar, India

<sup>3</sup>Assistant Professor, Department of Medicine, Mata Gujari Memorial Medical College, Kishanganj, Bihar, India

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Corresponding Author: Dr. Gyan Bhushan Raman

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### Abstract

**Aim:** The aim of the present study was to assess the clinic-investigative profiles of newly diagnosed type II diabetes patients.

**Methods:** A retrospective study was conducted on out patients (OPD) of medicine department of Mata Gujari Memorial Medical College, Kishanganj, Bihar, India. Present study was conducted for the period from December 2018 to November 2019 and 100 patients were included in the study. All the newly diagnosed diabetes mellitus patients of either gender, who are willing to give informed consent were included in this study.

**Results:** Out of that 55% were males and 45% were females. The mean age of the patients was  $51.64 \pm 9.51$  years. Majority of diabetes patients were of 51-60 years (34%) of age. Other common involved age groups were 41 to 50 years and 61 to 70 years. In all these groups statistical significant difference was seen in fasting sugar level. PPBS levels were found to be statistical significant among patients having diabetic complication and not having complication. The difference of mean HbA1C level found to be statistical significant. Pearson's correlation test between HbA1C level and lipid profile found to be not significant.

**Conclusion:** The present study concluded that male and female have somewhat similar predisposition for diabetes mellitus. Commonest symptoms among diabetes are polyuria, polydipsia and polyphagia etc. Diabetic neuropathy and nephropathy are commonest complication among study participants and adults should be screen earliest to diagnose diabetes and to prevent its complications.

**Keywords:** Diabetes mellitus, type II, Polyuria, Tingling, Numbness

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### Introduction

Diabetes mellitus (DM) is one of the major public health issues facing the world in the 21st century. Globally, an estimated 425 million people have diabetes in the world compared with 108 million in 1980, also there were over 72.9 million cases of diabetes in India by 2017 according to International Diabetes Federation statistics. [1] The estimated global prevalence of diabetes is 387 million (8.3%) and is projected to increase to 592 million by 2035 (IDF). [2] India is the diabetes capital of the world with 41 million Indians having diabetes; every fifth diabetic in the world is an Indian. [3] Rapid epidemiological transition in India with increased urbanization and westernization has contributed substantial rise in diabetes. [4] In India urban and rural prevalence of diabetes ranges from 5.6% to 12.4% and 2.4% to 2.7% respectively. [5]

Diabetes mellitus is a chronic metabolic disease caused by inherited and/or acquired deficiency in the production of insulin, or by the ineffectiveness of the insulin produced by the pancreas. [6] Type II diabetes may range from predominantly insulin resistance with relative insulin deficiency to a predominantly insulin secretory defect with insulin resistance. [7] Insulin is a hormone required to regulate blood sugar or glucose and absence of this function leads to a chronic hyperglycemic state. [8] Undiagnosed and inadequate treatment of diabetes may result into multiple complication which may lead to irreversible disabilities and deaths. Age, positive family history, obesity, hypertension, sedentary lifestyle, socioeconomic class etc. are known risk factors for diabetes mellitus.

The finding and grouping of diabetes depend on the clinical and immunological profile of the patients.

Immunological markers, for example, the pancreatic islet cell antibodies, including insulin antibodies, against GAD, (glutamic corrosive decarboxylase), and hostile to ICA512/IA2, an islet cell antigen are utilized for separation between various kinds of diabetes in the more youthful populace. Prior investigations have detailed clinical profiles and variable rates of immune response energy in newly diagnosed diabetes mellitus patients. [9-15] Hence the aim was to study clinic-investigative profiles of newly diagnosed type II diabetes patients.

### Material & Methods

A retrospective study was conducted on out patients (OPD) of medicine department of Mata Gujari Memorial Medical College, Kishanganj, Bihar, India. Present study was conducted for the period from December 2018 to November 2019 and 100 patients were included in the study. All the newly diagnosed diabetes mellitus patients of either gender, who are willing to give informed consent were included in this study.

### Exclusion Criteria

- Patients who are either less than 30 years or more than 70 years,
- Patient having history of chronic diseases like cancer, kidney diseases etc. were excluded.

### Methodology

Total 150 patients were recruited by using simple random sampling method. Structured and pilot test questionnaire was used for data collection. Questionnaire consisted of three parts. Part I included information on socio-demographic status, symptoms suggestive of diabetes mellitus and its complication. In part II family history of diabetes mellitus, history of hypertension, ischemic heart disease, stroke, addiction, physical activity were documented. In part III information on general and clinical examination were recorded. In general examination pulse, blood pressure, temperature, respiratory rate along information on anthropometric variable viz. height, weight, body mass index, waist circumference were recorded as per standard protocol. In clinical examination signs of skin infection, gangrene, ulcer, sensory neuropathy, motor neuropathy, and autonomic dysfunction were recorded. To detect proliferative and non-proliferative retinopathy dilated fundoscopy were carried out in all patients with the help of ophthalmologist.

### Statistical Analysis

Data was entered into Microsoft Excel and analyzed with SPSS v.16. Descriptive statistics like mean, standard deviation, frequency and proportion were calculated. Inferential statistics like 't' test, Pearson's correlation were used to check association. 'P' value.

### Results

**Table 1: Demographic data**

Gender	N	%
Male	55	55
Female	45	45
Age groups in years		
<40	10	10
41-50	34	34
51-60	26	26
61-70	20	20
>70	10	10

Out of that 55% were males and 45% were females. The mean age of the patients was  $51.64 \pm 9.51$  years. Majority of diabetes patients were of 51-60 years (34%) of age. other common involved age groups were 41 to 50 years and 61 to 70 years.

**Table 2: Clinico-investigative profile of diabetes mellitus patients**

Variable	Mean $\pm$ SD	Minimum	Median	Maximum
Systolic Blood pressure	130.76 $\pm$ 16.4	100	130	198
Diastolic Blood pressure	84.6 $\pm$ 7.25	70	82	100
Fasting blood sugar(FBS)	264.74 $\pm$ 100.2	120	246	486
Post prandial blood sugar(PPBS)	295.35 $\pm$ 80.7	112	280	540
HbA1C	9.00 $\pm$ 1.72	6.7	8.6	14.3
Urea	32.40 $\pm$ 13.27	15.6	30	102
Creatinine	0.88 $\pm$ 0.29	0.5	0.8	2.3

Sr. Cholesterol	212.56±41.04	125	212	338
Sr. LDL	123.36±33.8	12	115	258
Sr. HDL	42.50± 7.20	26.1	42	62
Sr. Triglyceride	192.22±71.71	80	188	403

The above table showed Clinico-investigative profile of diabetes mellitus patients.

**Table 3: Mean FBS, PPBS AND HbA1c among diabetic retinopathy, nephropathy and neuropathy**

FBS	Present (mean ± sd.)	Absent (mean ± sd.)	P value
Retinopathy	358.44±43.07	239.09±85.64	<0.0001
Nephropathy	352.72±47.44	252.55±90.55	0.0002
Neuropathy	343.85±75.00	239.75±83.86	<0.0001
<b>PPBS</b>			
Retinopathy	365.11±63.02	278.81±76.06	<0.0001
Nephropathy	475.13 ± 45.30	278.63 ± 61.79	<0.0001
Neuropathy	337.30±60.34	283.61±81.96	<0.0021
<b>HbA1c</b>			
Retinopathy	10.52 ± 1.77	8.67 ± 1.53	0.0004
Nephropathy	10.84 ± 1.79	8.84 ± 1.63	0.014
Neuropathy	10.41 ± 2.04	8.65 ± 1.45	0.0014

Patients of having diabetic neuropathy also has higher mean fasting blood sugar level (343.85±75.0) than non-diabetic neuropathy patients. In all these group's statistical significant difference was seen in fasting sugar level. Mean post prandial blood sugar level was higher in patients having diabetic retinopathy (365.11±63.02) than non-retinopathy (278.81±76.06) patients. In diabetic neuropathy patients mean post prandial blood sugar level was 337.30±60.34 while in non- diabetic neuropathy patients it was 283.61±81.96. PPBS levels were found to be statistical significant among patients

having diabetic complication and not having complication. Mean HbA1C level among patients having and not having diabetic retinopathy was 10.52 ± 1.77 and 8.67 ± 1.53 respectively. Among diabetic nephropathy patients mean HbA1C level found to be higher (10.84±1.79) than not having nephropathy (08.84±1.63). In diabetic neuropathy patients mean HbA1C level was 10.41±2.04 and not having neuropathy it was 08.65±1.45. The difference of mean HbA1C level found to be statistical significant.

**Table 4: Pearson's Correlation in between HbA1C and Lipid Profile**

HbA1c	Lipid markers	r	Strength of correlation	P
	Sr. Cholesterol	0.012	Weak Negative	0.90
	Sr. Triglyceride	0.11	Weak Positive	0.26
	Sr. LDL	0.01	Weak Positive	0.88
	Sr. HDL	-0.17	Weak Negative	0.07

Pearson's correlation test between HbA1C level and lipid profile found to be not significant.

### Discussion

The commonness of diabetes mellitus (DM) is expanding all through the world, particularly in non-industrial nations, including India because of changing ways of life of individuals and hereditary foundation. Diabetes is excessively higher in the youthful grown-up populace in Asian nations dissimilar to in the West, where it is more normal in more seasoned individuals. In 2012, 371 million individuals in the age bunch 20-79 years were experiencing diabetes with China having the most extreme number followed by India. [16]

Out of that 55% were males and heart 45% were females. The mean age of the patients was 51.64 ± 9.51 years. Majority of diabetes patients were of 51-60 years (34%) of age. other common involved age groups were 41 to 50 years and 61 to 70 years. Study conducted by Cassamo PA et al [17] also reported 50 to 60 years as common age group. In his study male to female ratio was 0.78:1. In all these group's statistical significant difference was seen in fasting sugar level. PPBS levels were found to be statistical significant among patients having diabetic complication and not having complication. The difference of mean HbA1C level found to be statistical significant. Pearson's correlation test between HbA1C level and lipid profile found to be not significant. In a study conducted by Kumar R et

al [18] retinopathy was present in 28% of the patients being significantly higher in males (32.5%) than in females (20.3%). In same study coronary artery disease and peripheral vascular disease (PVD) were present in 14 % and 17 % of subjects respectively being -more common in males. In present study, no significant correlations were found between various lipid profile parameters and HbA1C levels. Study done by Chowdhury TA et al [19] revealed that serum total cholesterol, LDL cholesterol and triglycerides were significantly raised whereas the level of HDL cholesterol was significantly lower in diabetic subjects.

### Conclusion

The present study concluded that male and female have somewhat similar predisposition for diabetes mellitus. Commonest symptoms among diabetes are polyuria, polydipsia and polyphagia etc. Diabetic neuropathy and nephropathy are commonest complication among study participants and adults should be screen earliest to diagnose diabetes and to prevent its complications.

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