



Original Research Article

Assess the prevalence of complications of diabetes according to duration of diabetes mellitus

Authors

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Abstract

Introduction: *Though Type 2 DM is characterized by relatively mild hyperglycemia, related symptoms, and not usually manifest ketosis, it invariably leads to one or more severely debilitating vascular or neurological complications. Being a slow onset and often a relatively asymptomatic disease, Type 2 DM remains undiagnosed at onset or even if diagnosed, is often ignored by persons affected by it.*

Materials and Methods: *250 type 2 diabetic patients of both gender in the wards and OPD from December 2017 to January 2018 of Endocrinology division of MGM Medical College and MY Hospital Indore were included in the study.*

Results: *In this study, complications in diabetic patients with duration of 0-5 years, showing total 14, 6, and 4 patients with neuropathy, retinopathy, and nephropathy respectively. Dyslipidemia was present in 38 patients. CVA and CAD were present in 7 and 13 patients respectively. Complications in diabetic patients with duration of more than 15 years, showing total 40, 26, and 10 patients with neuropathy, retinopathy, and nephropathy respectively. Dyslipidemia was present in 9 patients. CVA and CAD were present in 3 and 12 patients respectively.*

Conclusions: *It can be summarized from above study that the uncontrolled status of diabetes with long duration is directly related to the complications. A fine control of the blood sugar can definitely reduce these complications. So, in general, awareness to keep diabetes under control must be increased.*

Keywords: *Diabetes mellitus, Neuropathy, Retinopathy.*

Introduction

The change in lifestyle, improper dietary habits, food patterns, stress, and urbanisation has contributed immensely to gradual increase in diabetes mellitus in our country.^[1] Besides the higher prevalence the ethnic Indians are more prone to vascular complications. As the available date there are at least 30 million people with diabetes in our country, which could also be a possible underestimate.

Type 2 diabetes mellitus earlier known as maturity onset diabetes constitutes almost 95% of all Indian diabetes.^[2] Type 2 DM, the commoner type of diabetes, is usually diagnosed after 30 years of age and in more men than women.^[3] Though type 2 DM is characterized by relatively mild hyperglycemia, related symptoms, and does not usually manifest ketosis, it invariably leads to one or more severely debilitating vascular or neurological complications. Being a slow onset

and often a relatively asymptomatic disease, type 2 DM remains undiagnosed at onset or even if diagnosed, is often ignored by persons affected by it.^[4]

The present study was designed to find clinic-epidemiological manifestations associated with type 2 diabetes mellitus, and its correlation with different parameters of blood glucose and BMI etc.

Materials and Methods

250 type 2 diabetic patients of both gender in the wards and OPD from December 2017 to January 2018 of Endocrinology division of MGM Medical College and MY Hospital Indore were included in the study.

The history and physical examination was done in great detail, details were obtained for treatment taken. Age, sex, socio-economic status, duration, family history, Waist Hip Ratio, BMI, and BP were noted. BMI was determined by measuring the weight in kg divided by height in meter square, and Waist Hip Ratio was calculated by waist or abdominal circumference below the rib cage and above the umbilicus and hip or guillemot circumference is taken as the posterior extension of buttocks. Patients having subjective complaints of paresthesia, burning, numbness, tingling, vertigo on standing and objective findings of evidence of neuropathy motor sensory and autonomic neuropathy and neurological complications such as involvement of cranial nerves were assessed in relation to their diabetic status.

Statistical Methods: The data obtained was subjected to statistical analysis. The data so obtained was compiled systematically. A master table was prepared and the data was subdivided and distributed meaningfully and presented as individual table along with graphs. Statistical procedures were carried out in 2 steps:

1. Data compilation and presentation
2. Statistical analysis: Statistical analysis was done using Statistical Package of Social Science (SPSS Version 20; Chicago Inc., USA). Data comparison

was done by applying specific statistical tests to find out the statistical significance of the comparisons. Quantitative variables were compared using mean values and qualitative variables using proportions. Significance level was fixed at $p < 0.05$.

Results

In our study we have the following findings:

As shown in table 1, complications in diabetic patients with duration of 0-5 years, showing total 14 patients with neuropathy out of which 9 were males and 4 were females. Out 6 retinopathy patients, 5 were males and 1 was female. Out of total 4 patients of nephropathy 2 were males and 2 were females. Total 38 patients had HTN out of which 16 were males and 22 were females. Dyslipidemia was present in 38 patients out of which 20 were males and 18 were females. CVA was present in 7 patients out of which 4 were males and 3 were females. CAD was present in 13 patients out of which 9 were males and 4 were females.

Table 1: Complications in diabetic patients of 0-5 years duration of DM.

S. No.	Complications	Gender		Total
		Male	Female	
1.	Neuropathy	10	4	14
2.	Retinopathy	5	1	6
3.	Nephropathy	4	2	6
4.	HTN	16	22	38
5.	Dyslipidemia	20	18	38
6.	CVA	4	3	7
7.	CAD	9	4	13

As shown in table 2, complications in diabetic patients with duration of 6-10 years, showing total 19 patients with neuropathy out of which 9 were males and 10 were females. Out of 21 retinopathy patients, 10 were males and 11 were females. Out of total 14 patients of nephropathy 4 were males and 10 were females. Total 24 patients had HTN, out of which 11 were males and 13 were females. Dyslipidemia was present in 19 patients out of which 11 were males and 8 were females. CVA was present in 6 patients out of which 4 were males and 2 were females. CAD was present in 6

patients out of which 4 were males and 2 were females.

Table 2: Complications in diabetic patients of 6-10 years duration of DM.

S. No.	Complications	Gender		Total
		Male	Female	
1.	Neuropathy	9	10	19
2.	Retinopathy	10	11	21
3.	Nephropathy	4	10	14
4.	HTN	11	13	24
5.	Dyslipidemia	11	8	19
6.	CVA	4	2	6
7.	CAD	4	2	6

As shown in table 3, complications in diabetic patients with duration of 11-15 years, showing total 19 patients with neuropathy out of which 11 were males and 8 were females. Out 28 retinopathy patients, 16 were males and 12 were females. Out of total 22 patients of nephropathy 16 were males and 6 were females. Total 20 patients had HTN out of which 11 were males and 9 were females. Dyslipidemia was present in 15 patients out of which 9 were males and 6 were females. CVA was present in 5 patients out of which 3 were males and 2 were females. CAD was present in 07 patients out of which 4 were males and 3 were females.

Table 3: Complications in diabetic patients of 11-15 years duration of DM.

S. No.	Complications	Gender		Total
		Male	Female	
1.	Neuropathy	11	8	19
2.	Retinopathy	16	12	28
3.	Nephropathy	16	6	22
4.	HTN	11	9	20
5.	Dyslipidemia	9	6	15
6.	CVA	3	2	5
7.	CAD	4	3	7

As shown in table 4, complications in diabetic patients with duration of more than 15 years, showing total 40 patients with neuropathy out of which 18 were males and 22 were females. Out 26 retinopathy patients, 11 were males and 15 were female. Out of total 10 patients of nephropathy 5 were males and 5 were females. Total 12 patients had HTN out of which 4 were males and 8 were females. Dyslipidemia was present in 9 patients out of which 2 were males and 7 were females.

CVA was present in 3 patients out of which 1 was male and 2 were females. CAD was present in 12 patients out of which 6 were males and 6 were females.

Table 4: Complications in diabetic patients of more than 15 years duration of DM.

S. No.	Complications	Gender		Total
		Male	Female	
1.	Neuropathy	18	22	40
2.	Retinopathy	11	15	26
3.	Nephropathy	5	5	10
4.	HTN	4	8	12
5.	Dyslipidemia	2	7	9
6.	CVA	1	2	3
7.	CAD	6	6	12

As shown in table 5, BMI below normal was present in 12 males and 10 females, normal BMI was present in 60 males and 52 females, over weight was present in 44 males and 35 females, and obesity was present in 20 males and 17 females.

S. No.	BMI	Gender		Total
		Male	Female	
1.	Below Normal	12	10	22
2.	Normal	60	52	112
3.	Over weight	44	35	79
4.	Obese	20	17	37

Discussion

The present study was carried out to determine epidemiology and clinical manifestations of diabetes mellitus. During the study 250 cases were examined. The study group comprised of 250 diabetic patients included 136 males and 114 females. Clinical and epidemiological patterns study group consists of:

1. Diabetic patients were 250 in number.
2. Male patients- 136[54.46%].
3. Female patients - 114[45.6%]

Among the 250 cases of diabetes status 136 were males and 114 females. Their age at presentation ranged from 20-60 years but majority of the cases at age of presentation were more than 40 years. Age of presentation of cases was between 40-60 years which is similar to results of several studies. Complications in diabetic patients with duration of 0-5 years, showing total 14 patients with neuropathy out of which 9 were males and 4 were

females. Out of 6 retinopathy patients, 5 were males and 1 was female. Out of total 4 patients of nephropathy 2 were males and 2 were females. Total 38 patients had HTN out of which 16 were males and 22 were females. Dyslipidemia was present in 38 patients out of which 20 were males and 18 were females. CVA was present in 7 patients out of which 4 were males and 3 were females. CAD was present in 13 patients out of which 9 were males and 4 were females.

Complications in diabetic patients with duration of more than 15 years, showing total 40 patients with neuropathy out of which 18 were males and 22 were females. Out of 26 retinopathy patients, 11 were males and 15 were female. Out of total 10 patients of nephropathy 5 were males and 5 were females. Total 12 patients had HTN out of which 4 were males and 8 were females. Dyslipidemia was present in 9 patients out of which 2 were males and 7 were females. CVA was present in 3 patients out of which 1 was male and 2 were females. CAD was present in 12 patients out of which 6 were males and 6 were females.

Above mentioned data shows that as the duration of DM increases vascular and non vascular complications increases. In our findings, comparison of patients with DM less than 5 years and more than 15 years, retinopathy was almost 3 times more common, nephropathy was 3 times more common, and CAD was present in 13 and 12 patients respectively, and CVA was present in 7 and 3 patients respectively.

The mean BMI in this study for diabetic patients was 24.13kg/m². This is similar so the BMI Calculated in Anirban et al studied in 1996, which showed BMI variable between 16-24 kg/m². BMI below normal was present in 12 males and 10 females, normal BMI was present in 60 males and 52 females, over weight was present in 44 males and 35 females, and obesity was present in 20 males and 17 females.

In this study total number of CAD patients were 41. Total percent of diabetic patients with CAD was 16.8%. It was similar to study carried out by Guk et al. Diabetes and decline in heart disease mortality in US. There were 314 males and 340 females per 1000 cases. There is a mark difference in prevalence of CAD in diabetic patients in US study and in present study. Mohan et al found prevalence of CAD in diabetic patients was 17.8% which is near to present study.

Conclusions

It can be summarized from above study that the uncontrolled status of diabetes with long duration is directly related to the complications. A fine control of the blood sugar can definitely reduce these complications. So, in general, awareness to keep diabetes under control must be increased.

Declaration

Funding: No funding source

Conflict of Interest: Not declared

Ethical Approval: Study was approved by Institutional Review Board.

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