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Assessment of complications of diabetes mellitus patients

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Abstract

Materials and Methods: The present study was conducted to assess complications in type II diabetes mellitus patients.

Results: Age group <20 years had 10 males and 2 females, age group 20-40 years had 24 males and 6 females and age 40-60 years had 30 males and 24 females. The difference was statistical significant ($P < 0.05$). Common complications were hypertension in 124 patients, nephropathy in 89, foot ulceration in 15, impotency in 68, neuropathy in 23, visual disturbance in 142 and retinopathy in 102 patients. The difference was significant ($P < 0.05$).

Conclusion: Authors suggested that diabetes in multiorgan multifactorial diseases. Common complications were hypertension, visual disturbances, neuropathy, foot ulceration, nephropathy, impotence and diabetic retinopathy.

Keywords: Complication, diabetes mellitus, diabetic retinopathy

Introduction

Diabetes is an insidious public health problem. The International Diabetes Federation (IDF) indicates that the number of people living with diabetes globally is expected to rise from 366 million in 2011 to 552 million by 2030, if no urgent action is taken. Presently, more than three-quarters of the estimated 179 million people with diabetes are in the 40-59 years age range, hence it is important to screen individuals early to increase the quality of life and delay complications. India is the diabetes capital of the world, with 41 million Indians having diabetes, every fifth diabetic in the world is an Indian. Diabetes Mellitus is the leading cause/risk factor for various cardiovascular and renal diseases. It is the leading cause for hospital admissions in medical wards in most of the tertiary hospitals^[1].

The diagnosis, treatment and management of complications pose a considerable burden on individual and country as well. The Indian Diabetes Risk Score (IDRS) is a simple, low cost, feasible tool for mass screening programme at the community level developed by Mohan *et al.* has been validated by other researchers. In a country like India, it can prove to be a cost effective tool for screening of diabetes at the community level^[2]. The purpose of community based screening for diabetes is to differentiate asymptomatic individuals who are at high risk of Diabetes from individuals at lower risk, so that appropriate preventive strategies can be initiated early. Ideally, screening tests should be rapid, simple, and safe. Since diabetes is an ice-berg disease, most of the subjects remain asymptomatic. The most common chronic complications are erectile dysfunction, visual disturbance, and cardiovascular disorders, though hypertension alone was, neuropathy and nephropathy^[3]. The present study was conducted to assess complications in type II diabetes mellitus patients.

Materials and Methods

This study was conducted in department of Internal Medicine. It comprised of 178 type II DM patients of both genders. All were informed regarding the study and written consent was obtained. Ethical clearance was taken from institutional ethical committee.

General information such as name, age, sex etc. was recorded. A general physical examination was performed in all subjects. History of diet, smoking, alcoholism, and family history of the disease was also obtained. All were subjected to HbA1c level estimation. Diagnosis of diabetic complications was done by physician and complications and laboratory results were obtained. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

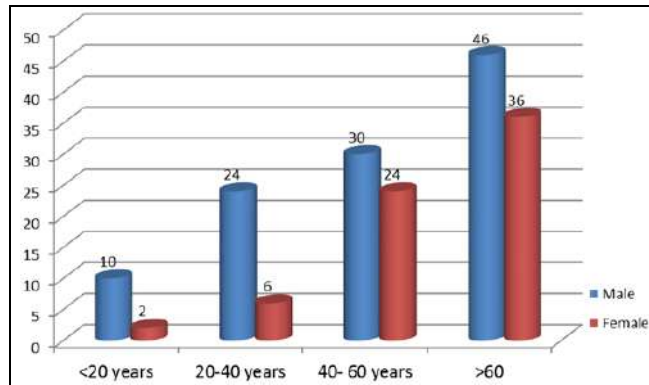
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Results

Table 1: Age and gender wise distribution of patients

Age group	Male	Female	P value
<20 years	10	2	0.01
20-40 years	24	6	0.01
40- 60 years	30	24	0.51
>60	46	36	0.71

Table 1, graph 1 shows that age group <20 years had 10 males and 2 females, age group 20-40 years had 24 males and 6 females and age 40-60 years had 30 males and 24 females. The difference was statistical significant ($P < 0.05$).

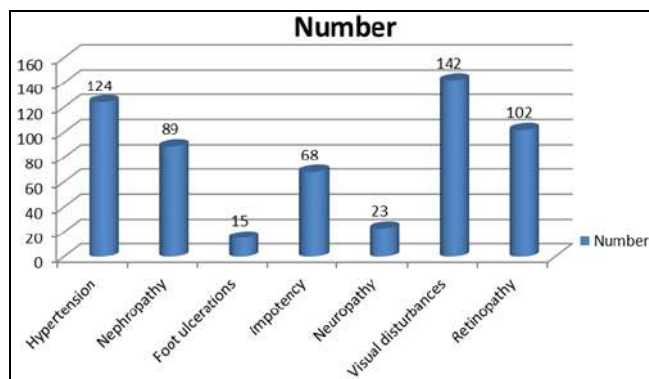


Graph 1: Age and gender wise distribution of patients

Table 2: Complications of DM in patients

Complications	Number	P value
Hypertension	124	0.01
Nephropathy	89	
Foot ulcerations	15	
Impotency	68	
Neuropathy	23	
Visual disturbances	142	
Retinopathy	102	

Table 2, graph 2 shows that common complications were hypertension in 124 patients, nephropathy in 89, foot ulceration in 15, impotency in 68, neuropathy in 23, visual disturbance in 142 and retinopathy in 102 patients. The difference was significant ($P < 0.05$).



Graph 2: Complications of DM in patients

Discussion

Type 2 DM is characterized by insulin insensitivity as a result of insulin resistance, declining insulin production, and eventual pancreatic beta-cell failure. This leads to a decrease

in glucose transport into the liver, muscle cells and fat cells. There is an increase in the breakdown of fat with hyperglycemia [4, 5]. The present study was conducted to assess complications in type II DM patients.

In present study, age group <20 years had 10 males and 2 females, age group 20-40 years had 24 males and 6 females and age 40-60 years had 30 males and 24 females. Colagiuri *et al.* [6] in their cross sectional survey on adults >30 years (n=580) on both gender, socio-demographic characteristics, risk factor profile and Indian Diabetes Risk Score was used. Out of 580 subjects, 31 (5.3%) study subjects were not at risk of having diabetes, rest 94.5% were at moderate or high risk of diabetes. A statistically significant association of diabetes risk with marital status ($p=0.0001$), education (0.005), body mass index (0.049) and systolic blood pressure was seen.

We found that common complications were hypertension in 124 patients, nephropathy in 89, foot ulceration in 15, impotency in 68, neuropathy in 23, and visual disturbance in 142 and retinopathy in 102 patients. The Indian Diabetes Risk Score (IDRS) is a simple, low cost, feasible tool for mass screening programme at the community level. The IDRS has a sensitivity of 72.5% and specificity of 60.1% which takes into account two non-modifiable risk factors (age and family history of diabetes) and two modifiable risk factors (waist circumference and physical inactivity) which may be amenable to intervention and easy to measure at a very low cost. In a country like India, it can prove to be a cost effective tool for screening of diabetes at the community level [7].

Jayatiruthiga *et al.* [8] in their community-based, cross-sectional study, out of 351 study subjects, only 30 (8.5%) study subjects were not at risk of having diabetes, 119 (33.9%) were at moderate risk and 202 (57.6%) were at higher risk of having Diabetes. Comparing age, gender, socioeconomic status with diabetes risk category, we found that age is associated with diabetes risk category and the p-value was highly significant.

World Health Organization (WHO) classification includes both clinical stages (norm glycaemia, impaired glucose tolerance/impaired fasting glucose (IGT/IFG), diabetes) and etiological types of diabetes mellitus, identical to the ADA except that WHO group includes classification formerly known as gestational impaired glucose tolerance (GIGT) and GDM: fasting glucose = 7.0 mmol/L (126 mg/dL) and/or 2-h glucose = 7.8 mmol/L (140 mg/dL) after a 75-g OGTT [9].

Yki-Jarvinen *et al.* [10] found that the majority of study subjects were Hindus. There was no significant association between diabetes risk and religion which suggest that diabetes risk is similar across all religions. Though home makers, unemployed or unskilled workers were at higher risk (78.8%), but there was no significant association between diabetes risk and occupation.

Conclusion

Authors suggested that diabetes in multiorgan multifactorial diseases. Common complications were hypertension, visual disturbances, neuropathy, foot ulceration, nephropathy, impotence and diabetic retinopathy.

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