Original Research Article

Evaluation of Incidence of Complications of Diabetes in Known Population: An Institutional Based Study

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ABSTRACT

Background: Diabetes mellitus is metabolic disease having severe complications. The present study was conducted to assess complications in type II DM patients.

Materials & Methods: This study was conducted in Department of Medicine, World College of Medical Sciences and Research, Gurawar, Jhajjar, Haryana (India) on 488 type II DM patients of both genders. Diagnosis of diabetic complications was done by physician and complications and laboratory results were obtained.

Results: 210 males and 112 females had history of smoking, 242 males and 140 females had history of alcohol intake and 155 males and 170 females had obesity. The difference was significant ($P < 0.05$). Common complications were hypertension in males (214) and (165) in females, neuropathy in males (45) and females (64), foot ulceration in males (24) and females (30), nephropathy in males (110) and females (125), visual disturbance in males (180) and females (195), impotence in males (29) and females (22) and retinopathy in males (156) and females (172). The difference was significant ($P<0.05$).

Conclusion: Diabetes mellitus has effect on every organ. Common complications are hypertension, visual disturbances, neuropathy, foot ulceration, nephropathy, impotence and diabetic retinopathy.

Key words: Diabetes Mellitus, Diabetic Retinopathy, Nephropathy.

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INTRODUCTION

Diabetes mellitus is a global epidemic and a leading cause for increasing mortality and morbidity. More than 170 million people worldwide have diabetes, and this figure is projected to double by the year 2030, if the current trend continues.

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]

Diabetes mellitus (DM) is a group of common metabolic disorders that share the phenotype of hyperglycemia, which are caused by a complex interaction of genetics and environmental factors. The prevalence of diabetes is rapidly rising all over the world. It has now become the disease of morbidity and mortality affecting the youth and middle aged people. Type 2 diabetes mellitus has

higher prevalence rate all over the world which accounts for more than 90 percent of all diabetes cases., but number of type I diabetes mellitus cases is increasing excessively nowadays.[2] Different studies have documented the complications of diabetes in different setups including hospitals and the community including its contributing factors like poor attitude and adherence. The most common chronic complications are erectile dysfunction, visual disturbance, and cardiovascular disorders, though hypertension alone was, neuropathy and nephropathy.

The common risk factors for occurrence of complications were gender, long duration with diabetes, poor and inadequate glycemic control, negative attitude towards diabetes, poor treatment adherence, and poor knowledge about the disease and its management.[3]

The present study was conducted to evaluate complications in type II diabetes mellitus in known population.

MATERIALS & METHODS

This study was conducted in Department of Medicine, World College of Medical Sciences and Research, Gurawar, Jhajjar, Haryana, India. In included 488 type II DM patients of both genders (males- 280, females- 208). 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, diet, smoking, alcoholism, and family history of the disease was taken.

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.

Table I: Age wise distribution of patients

Age group	Male	Female	P value
<25 years	40	63	0.01
25-50 years	80	95	0.5
>50 years	160	150	0.1
Total	280	208	

Graph I: Smoking, alcohol and obesity level in patients
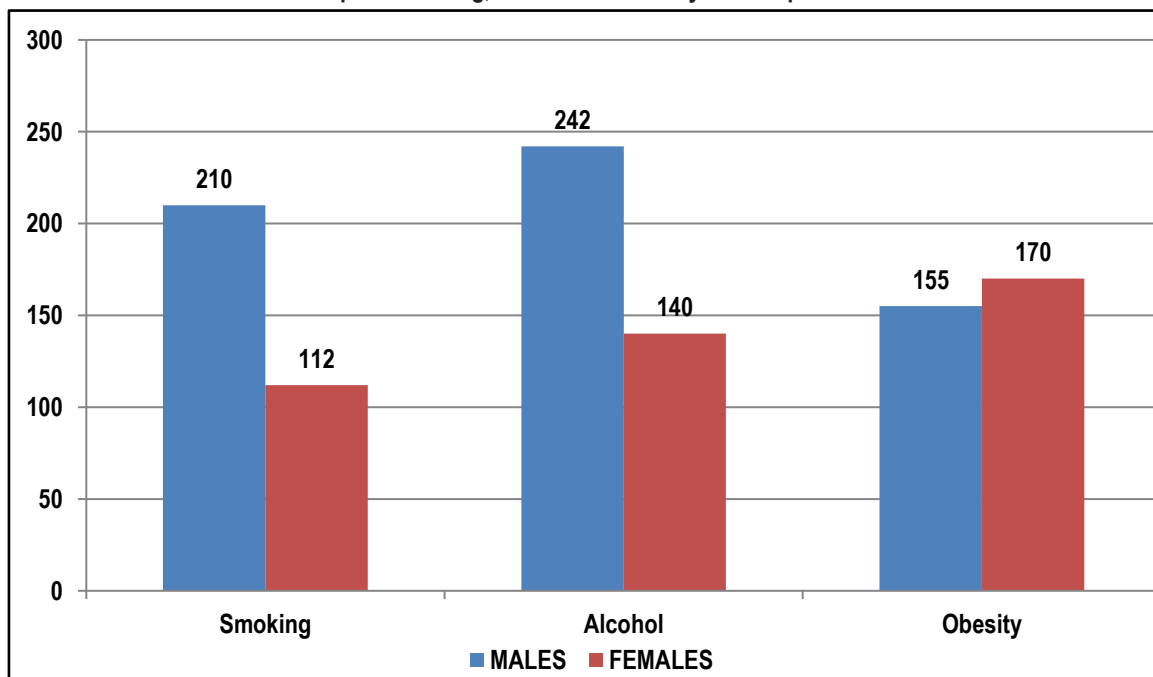
Table II: Complications of DM

Complications	Males	Females	P value
Hypertension	214	165	
Nephropathy	110	125	0.01
Neuropathy	45	64	
Visual disturbances	180	195	
Foot ulcerations	24	30	
Impotency	29	22	
Retinopathy	156	172	

RESULTS

Table I shows that age group <25 years had 40 males and 63 females, age group 25-50 years had 80 males and 95 females and age >50 years had 160 males and 150 females. The difference was statistical non- significant (P> 0.05). Graph I shows that 210 males and 112 females had history of smoking, 242 males and 140 females had history of alcohol intake and 155 males and 170 females had obesity. The difference was significant (P< 0.05). Table II shows that common complications were hypertension in males (214) and (165) in females, neuropathy in males (45) and females (64), foot ulceration in males (24) and females (30), nephropathy in males (110) and females (125), visual disturbance in males (180) and females (195), impotence in males (29) and females (22) and retinopathy in males (156) and females (172). The difference was significant (P<0.05).

DISCUSSION

Diabetes mellitus type 2 is a long-term metabolic disorder that is characterized by high blood sugar, insulin resistance, and relative lack of insulin. 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] The present study was conducted to assess complications in type II DM patients. We observed that age group <25 years had 40 males and 63 females, age group 25-50 years had 80 males and 95 females and age >50 years had 160 males and 150 females. This is in agreement with Augusta et al.[5] Common symptoms include increased thirst, frequent urination, and unexplained weight loss. Symptoms may also include increased hunger, feeling tired, and sores that do not heal. Often symptoms come on slowly. Long-term complications from high blood sugar include heart disease, strokes, diabetic retinopathy which can result in blindness, kidney failure, and poor blood flow in the limbs which may lead to amputations.[6]

According to the Americal Diabetes Association (ADA), the fasting glucose concentration should be used in routine screening for diabetes; but postprandial blood sugar, random blood sugar and glucose tolerance test are also used for blood sugar determination. For the diagnosis of diabetes, at least one criterion must apply such as symptoms of diabetes (polyurea, polydipsia, unexplained weight loss, etc) as well as casual plasma glucose concentration = 11.1 mmol/L (200 mg/dL). Fasting plasma glucose range is 70-110 mg/dl with no caloric intake for at least 8 h. The World Health Organization (WHO) classification includes both clinical stages (normoglycaemia, 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.[7]

We observed that 210 males and 112 females had history of smoking, 242 males and 140 females had history of alcohol intake and 155 males and 170 females had obesity. The common complications were hypertension, neuropathy, foot ulceration, nephropathy, visual disturbances, impotency and retinopathy.

A diabetic foot is a foot that exhibits any pathology that results directly from diabetes mellitus or any long-term (or "chronic") complication of diabetes mellitus. Presence of several characteristic diabetic foot pathologies such as infection, diabetic foot ulcer and neuropathic osteoarthropathy is called diabetic foot syndrome.[8] Diabetic nephropathy (DN), also known as diabetic kidney disease, is the chronic loss of kidney function occurring in those with diabetes mellitus. Diabetic neuropathies are nerve damaging disorders associated with diabetes mellitus. These conditions are thought to result from a diabetic microvascular injury involving small blood vessels that supply nerves in addition to macrovascular conditions that can accumulate in diabetic neuropathy.[9]

CONCLUSION

Common complications were hypertension, visual disturbances, neuropathy, foot ulceration, nephropathy, impotence and diabetic retinopathy. Early detection and suitable management is required to prevent complications.

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