www.jmscr.igmpublication.org
Impact Factor 5.84
Index Copernicus Value: 71.58
ISSN (e)-2347-176x ISSN (p) 2455-0450
crossref DOI: https://dx.doi.org/10.18535/jmscr/v6i1.45

IGM Publication
Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

Complications in Patients with Type II Diabetes Mellitus- A Clinical Study

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Abstract
Background: *Complications in type II diabetes mellitus patients are quite common. The present study was conducted to assess complications in type II DM patients.*
Materials & Methods: *This study was conducted in department of general medicine on 512 type II DM patients of both genders. General information such as name, age, sex, diet, smoking, alcoholism, and family history of the disease was taken. Diagnosis of diabetic complications was done by physician and complications and laboratory results were obtained.*
Results: *Out of 512 diabetic patients, 280 were females and 232 males. Age group <30 years had 70 males and 105 females, age group 30-45 years had 68 males and 47 females and age>45 years had 110 males and 150 females. The difference was statistical significant (P<0.05). 450 of patients were vegetarian. 30 patients were smokers and 130 were alcoholic. 140 were obese. The difference was statistical significant (P<0.05). Common complications were hypertension in males (210) and 220 in females, visual disturbance in males (56) and females (65), neuropathy in males (73) and females (85), foot ulceration in males (25) and females (22), nephropathy in males (45) and females (73), impotence in males (18) and females (12) and diabetic retinopathy in males (60) and females (55). The difference was significant (P<0.05).*
Conclusion: *Author concluded that common complications were hypertension, visual disturbances, neuropathy, foot ulceration, nephropathy, impotence and diabetic retinopathy. Early detection and suitable management is required to prevent complications.*
Keywords: *Diabetes mellitus, Diabetic retinopathy, Nephropathy.*

Introduction

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.[1]

The number of diagnosed diabetic patients is 61.3 million so far and hence also known as the diabetic capital of the world. According to the International Diabetes Federation (IDF), at the end of 2030, the number of people with type 2

diabetes mellitus will increase to 552 million. India will contribute 21% of cases, which is very high for a single country. Modern life style and changed diets with use of refined foods especially sugar and fat had led the increasing incidence of diabetes mellitus. There are various factors such as obesity, genetic factor, excessive intake of food especially sugar and lack of exercise play important role in diabetes mellitus.[2]

It is the leading cause of end-stage renal disease (ESRD), traumatic lower extremity amputations, and adult blindness. It also predisposes to cardiovascular diseases. But blood glucose level might be increased despite appropriate therapy resulting in complications, such as disturbances in fat metabolism, nerve damage, and eye disease.

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 assess complications in type II DM patients.

Materials & Methods

This study was conducted in department of general medicine. In included 512 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, diet, smoking, alcoholism, and family history of the disease was taken. Diagnosis of diabetic complications was done by physician and complications and laboratory results were obtained. Results were tabulated and subjected for correct inferences.

Results

Out of 512 diabetic patients, 280 were females and 232 males. The difference was statistical non significant (P-0.1) (Table I). Table II shows that age group <30 years had 70 males and 105 females, age group 30-45 years had 68 males and 47 females and age>45 years had 110 males and 150 females. The difference was statistical significant (P<0.05). Table III shows risk factor for the development of diabetes. 450 of patients were vegetarian. 30 patients were smokers and 130 were alcoholic. 140 were obese. The difference was statistical significant (P<0.05). Graph I shows that common complications were hypertension in males (210) and 220 in females, visual disturbance in males (56) and females (65), neuropathy in males (73) and females (85), foot ulceration in males (25) and females (22), nephropathy in males (45) and females (73), impotence in males (18) and females (12) and diabetic retinopathy in males (60) and females (55). The difference was significant (P<0.05).

Table I Distribution of patients

Total- 550			
Gender	Male	Female	P value
Number	248	302	0.6

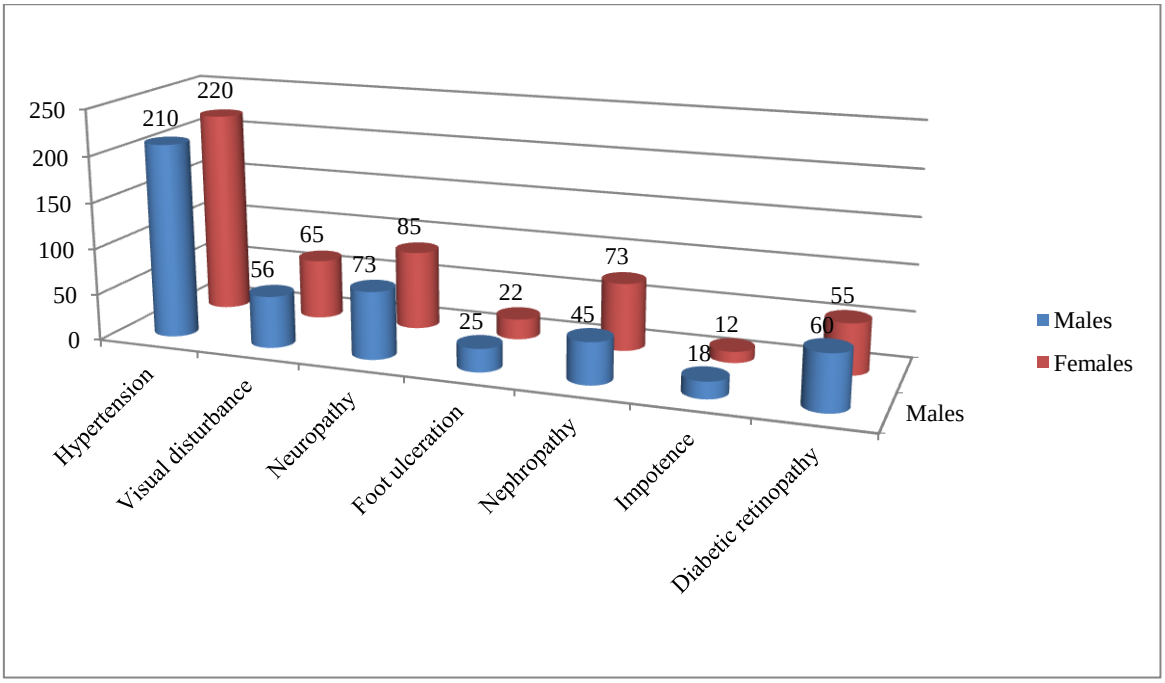
Table II Age wise distribution of patients

Age group	Male	Female	P value
<30 years	70	105	0.01
30-45 years	68	47	0.02
>45 years	110	150	0.05
Total	248	302	

Table III Risk factors in patients

Risk factors	Category	Total	P value
Diet	Veg	450	0.05
	Non veg	62	
Smoking	User	30	0.01
	Non user	482	
Alcohol	User	130	0.05
	Non user	382	
Obesity	Non obese	140	0.01
	Obese	372	

Graph I Complications in patients



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. 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. The sudden onset of hyperosmolar hyperglycemic state may occur; however, ketoacidosis is uncommon.[4] The present study was conducted to assess complications in type II DM patients.

In this study, out of 512 diabetic patients, 280 were females and 232 males. Maximum patients were seen >45 years of age followed by <30 years and 30-45 years. This is in accordance to Knowler WC et al.[5] We found that 450 patients were vegetarian, 30 patients were smokers, 130 were alcoholic and 140 were obese. This is similar to Unwin N.[6] We found that common complications were hypertension, visual disturbances, neuropathy, foot ulceration, nephropathy, impotence and diabetic retinopathy. Similar findings were seen in study by Colagiuri S et al.[7]

Diabetic retinopathy, also known as diabetic eye disease, is a medical condition in which damage occurs to the retina due to diabetes and is a leading cause of blindness. It affects up to 80 percent of people who have had diabetes for 20 years or more. At least 90% of new cases could be reduced if there were proper treatment and monitoring of the eyes. The longer a person has diabetes, the higher his or her chances of developing diabetic retinopathy. Each year in the United States, diabetic retinopathy accounts for 12% of all new cases of blindness. It is also the leading cause of blindness for people aged 20 to 64 years.[8]

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.[9]

Diabetic nephropathy (DN), also known as diabetic kidney disease, is the chronic loss of kidney function occurring in those with diabetes

mellitus. Protein loss in the urine due to damage to the glomeruli may become massive, and cause a low serum albumin with resulting generalized body swelling (edema) and result in the nephrotic syndrome. Likewise, the estimated glomerular filtration rate (eGFR) may progressively fall from a normal of over 90 ml/min/1.73m^2 to less than 15, at which point the patient is said to have end-stage kidney disease (ESKD). It usually is slowly progressive over years.[10]

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. Relatively common conditions which may be associated with diabetic neuropathy include third, fourth, or sixth cranial nerve palsy; mononeuropathy; mononeuropathy multiplex; diabetic amyotrophy; a painful polyneuropathy; autonomic neuropathy; and thoracoabdominal neuropathy.[11]

Conclusion

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

References

1. N. Gul, "Knowledge, attitudes and practices of type 2 diabetic patients," Journal of Ayub Medical College, Abbottabad 2010; 128–131.
2. A. H. Eldarrat, "Diabetic patients: their knowledge and perception of oral health," Libyan Journal of Medicine. 2011; 1–5.
3. R.M. Anderson, M. B. Donnelly, and R. F. Dedrick, "Measuring the attitudes of patients towards diabetes and its treatment," Patient Education and Counseling. 1990; 2-12.
4. M. Clark, "Adherence to treatment in patients with type 2 diabetes," Journal of Diabetes Nursing. 2004; 389–391.
5. Knowler WC, Bennett PH, Hamman RF, Miller M. Diabetes incidence and prevalence in Pima Indians: a 19-fold greater incidence than in Rochester, Minnesota. Am J Epidemiol. 1978 Dec; 108:497–505.
6. Unwin N, Whiting D, Roglic G. Social determinants of diabetes and challenges of prevention. Lancet. 2010; 375: 2204–5.
7. Colagiuri S, Borch-Johnsen K, Glumer C. There really is an epidemic of Type 2 Diabetes. Diabetologia. 2005; 48: 1459-1463.
8. R. B. Roaeid and A. A. Kablan, "Diabetes mortality and causes of death in Benghazi: a 5-year retrospective analysis of death certificates," Eastern Mediterranean Health Journal. 2010; 65–66.
9. Z. Liu, C. Fu, W. Wang, and B. Xu, "Prevalence of chronic complications of type 2 diabetes mellitus in outpatients—a cross-sectional hospital based survey in urban China," Health and Quality of Life Outcomes. 2010; 1-15.
10. J. Peter, C. K. Riley, B. Layne, K. Miller, and L. Walker, "Prevalence and risk factors associatedwith erectile dysfunction in diabetic men attending clinics in Kingston, Jamaica," Journal of Diabetology. 2012; 2-13.
11. A. Raval, E. Dhanaraj, A. Bhansali, S. Grover, and P. Tiwari, "Prevalence & determinants of depression in type 2 diabetes patients in a tertiary care centre," Indian Journal of Medical Research. 2012; 2: 1-11.