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ORIGINAL ARTICLE

COMPLICATIONS IN PATIENTS WITH TYPE II DIABETES MELLITUS- A CLINICAL STUDY

Manjinder Singh[1], Gurpreet Kaur[2]

[1]Department of Medicine, Govt Mata Kaushalya District Hospital Patiala, [2]Senior resident, Department of Plastic Surgery, Govt. Medical College Patiala

ABSTRACT:

Background: Diabetes is a chronic disease characterized by higher level of blood glucose level that can be due to defects in insulin protection, insulin action or both. The disease is highlighted for the severity of its complications, in addition to being considered a public health problem in terms of population growth and aging, greater urbanization, the increasing prevalence of obesity and sedentarism, as well as the increased survival rate from people with diabetes. The present study was conducted to assess various complications in patients with type II diabetes mellitus. **Materials & Methods:** This study was conducted in department of general medicine in year 2012. It consisted of 1550 (females- 715, males- 835). Patient blood sample was taken for evaluation of both fasting and random blood sugar estimation. In all patients, HbA1c test was performed. The blood samples of 5 µl were taken for HbA1c test using the unique procedure with Bio-Rad Variant II. The level of glycemic control was defined as optimal (HbA1c < 6.5%), fair (6.5% ≤ HbA1c ≤ 7.5%), and poor (HbA1c > 7.5%). In all patients, complications were recorded. **Results:** Out of 1550 diabetic patients, 715 were females and 835 males. The difference was non - significant (P - 0.21). 620 patients were in range of 20-39 years and 930 patients were above 40 years of age. Graph I shows that among cardiovascular complications, common were angina (465), hypertension (388), heart disease (95), chronic heart failure (21) and infarction (7). The difference was significant (P- 0.01). Cerebrovascular conditions in patients were stroke (30), transient ischemic attack (47) and both stroke and transient ischemic attack (6). The difference was significant (P- 0.01). Ocular complications were cataract (106), retinopathy (62) and blindness (2). The difference was significant (P- 0.01). Nephropathy conditions were microalbuminuria (4), microalbuminuria (12) and renal failure (10). The difference was non- significant (P > 0.05). **Conclusion:** Type II diabetes mellitus is common disease among adults. It has high morbidity and mortality. The high prevalence of complications is indicative of proper need of diagnosis and management of patients.

Key words: Cerebrovascular, diabetes mellitus, hypertension

Corresponding author: Dr. Manjinder Singh, Department of Medicine, Govt Mata Kaushalya District Hospital Patiala.

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INTRODUCTION

Diabetes is a chronic disease characterized by higher level of blood glucose level that can be due to defects in insulin protection, insulin action or both. Diabetes mellitus has type I and type II variety. Type 2 diabetes mellitus has higher prevalence rate all over the world which accounts for more than 90 percent of all diabetes cases.[1]

Diabetes mellitus is a chronic condition that grows the most, especially in developing countries. The disease is highlighted for the severity of its complications, in addition to being considered a public health problem in terms of population growth and aging, greater urbanization, the increasing prevalence of obesity and sedentarism, as well as the increased survival rate from people with diabetes.[2]

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.[3]

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.[4]

Many patients already show metabolic abnormalities, such as dyslipidemia, further contributing to the development of complications. About 50-80% of all individuals with diabetes die of cardiovascular disease, with cerebrovascular disease, and kidney failure also among the leading

cause of death. Permanent disability is a common outcome of diabetes, with late complications of diabetes being major determinants for disability. Diabetic eye disease, particularly retinopathy, has become a major cause of blindness throughout the world. Moreover, clinical epidemiologic studies suggest that foot ulcers precede more than 85% of non-traumatic lower extremity amputations (LEAs) in diabetic individuals.[5]

The present study was conducted to assess various complications in patients with type II diabetes mellitus.

MATERIALS & METHODS

This study was conducted in department of general medicine in year 2012. It consisted of 1550 (females- 715, males- 835). Patients were informed regarding the study and written consent was obtained. Patient information regarding age, sex, education, occupation, diet, smoking, alcoholism, and family history of the disease was taken.

The following factors were considered positive for diabetes.

1. Plasma glucose concentration >126/dl in case of fasting and >200mg/dl in case of random blood glucose level.
2. Polyuria, polydipsia and unexplained weight loss.

Patient blood sample was taken for evaluation of both fasting and random blood sugar estimation. In all patients, HbA1c test was performed. The blood samples of 5 µl were taken for HbA1c test using the unique procedure with Bio-Rad Variant II. The level of glycemic control was defined as optimal (HbA1c < 6.5%), fair (6.5% ≤ HbA1c ≤ 7.5%), and poor (HbA1c > 7.5%). Results were tabulated and subjected for correct inferences.

RESULTS

Table I shows that out of 1550 diabetic patients, 715 were females and 835 males. The difference was non - significant (P - 0.21). Table II shows that 620 patients were in range of 20-39 years and 930 patients were above 40 years of age. Graph I shows that among cardiovascular complications, common were angina (465), hypertension (388), heart disease (95), chronic heart failure (21) and infarction (7). The difference was significant (P- 0.01). Graph II shows that cerebrovascular conditions in patients were stroke (30), transient ischemic attack (47) and both stroke and transient ischemic attack (6). The difference was significant (P- 0.01). Graph III shows that ocular complications were cataract (106), retinopathy (62) and blindness (2). The difference was significant (P- 0.01). Graph IV shows that nephropathy conditions were microalbuminuria (4), microalbuminuria (12) and renal failure (10). The difference was non- significant (P > 0.05).

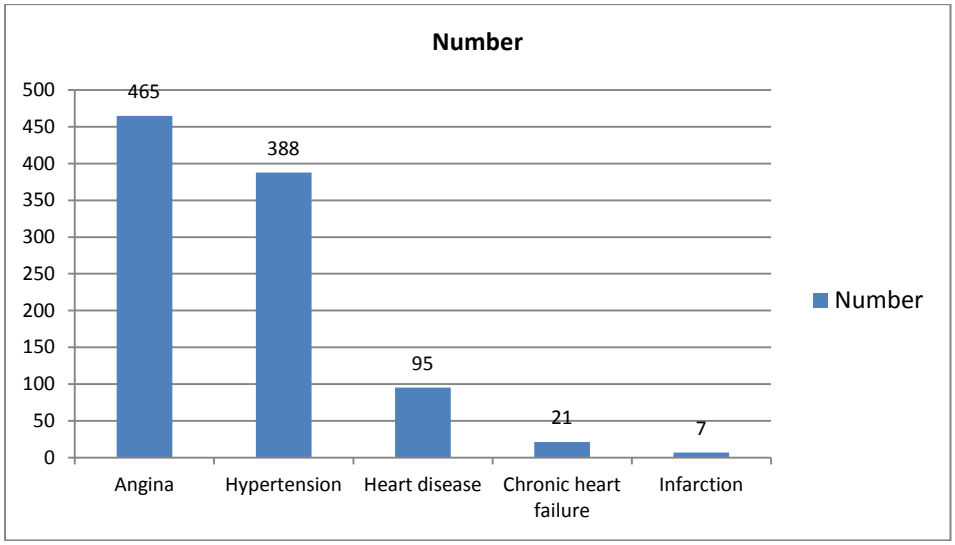
Table I Distribution of patients based on gender

Total - 1550			
Gender	**Male**	**Female**	**P value**
Number	835	715	0.21

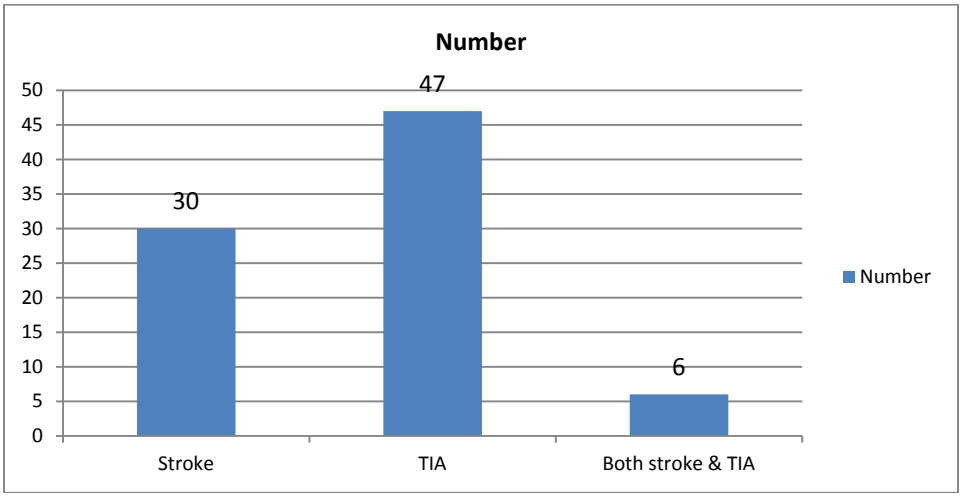
Table II Distribution of patients based on age

Total - 1550			
Age range	**20-39 years**	**>40 years**	**P value**
Number	620	930	0.05

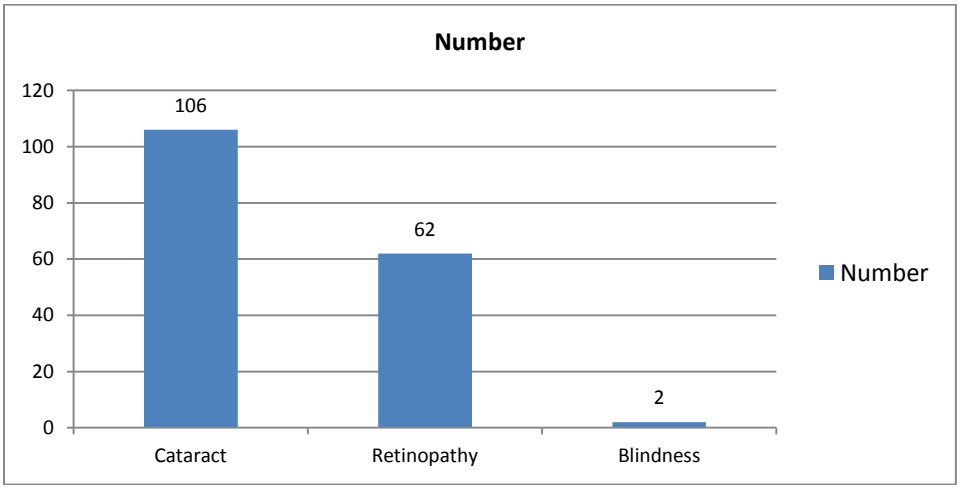
Graph I Cardiovascular complications in patients



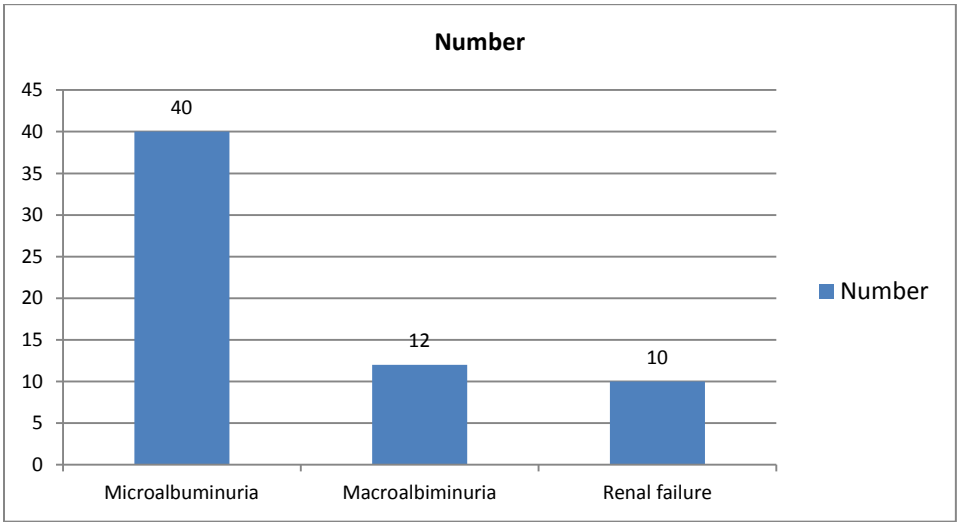
Graph II Cerebrovascular conditions in patients



Graph III Ocular conditions in patients



Graph IV Nephropathy conditions in patients



DISCUSSION

Prediabetic conditions like impaired glucose tolerance and impaired fasting glucose are also on the rise indicating the possibility of further rise in the prevalence of diabetes. Several studies have shown that these prediabetic states are also high risk stages for cardiovascular disease. The prevalence of impaired glucose tolerance which is a fore runner of diabetes, is also increasing especially among the younger populations. The incidence of chronic complications in T2DM patients was significantly associated with the degree of hyperglycemia, as measured by the plasma glucose or the HbA1c level.[6] The present study was conducted to assess various complications in patients with type II diabetes mellitus.

In our study, out of 1550 diabetic patients, 715 were females and 835 males. 620 patients were in range of 20-39 years and 930 patients were above 40 years of age.

We evaluated the complications in T2DM patients. We found that among cardiovascular complications, common were angina followed by hypertension, heart disease, chronic heart failure and infarction. This is in agreement with Ramachandra A et al.[7] Other complications, we recorded in our study was cerebrovascular conditions. We found that in patients had stroke, transient ischemic attack (TIA) and both stroke and transient ischemic attack. Unwin N et al[8] in their study found TIA as most common cerebrovascular conditions.

Ocular complications were cataract, retinopathy and blindness. Similar results were seen in study by Colagiuri S et al.[9] The higher prevalence of microvascular complications including neuropathy and eye disease among diabetic patients corresponds to earlier findings reported in the literature.[10] Hormones and factors associated with occupational and social inequalities have been invoked as tentative explanations. With regard to the prevention, management and treatment of neuropathy and eye disease, this suggests that special attention should be paid to diabetic patients. Common nephropathy conditions were microalbuminuria (4), microalbuminuria (12) and renal failure (10). This is in agreement with Krentz AJ, Bailey JC.[11]

In diabetes mellitus, the onset of complications worsens in people who do not perform self-care activities related to the correct dietary habits, physical activity and the proper use of medicines when needed. It is important to remember that the onset of complications observed in people who have had the disease for longer is related to the number of years lived, which can be affected not only by clinical exposure, but also by the treatment they received throughout life.[12]

For example, older patients of a sample with time of diabetes diagnosis for more than 10 years may have received their initial treatments during the early 1990 and therefore, early treatment may have been less intense.

CONCLUSION

Type II diabetes mellitus is common disease among adults. It has high morbidity and mortality. The high prevalence of complications is indicative of proper need of diagnosis and management of patients.

REFERENCES

1. Mohan V, Shantirani CS, Deepa R. Glucose intolerance (Diabetes and IGT) in a selected South Indian population with special reference to family history, obesity and lifestyle factors-the Chennai Urban Population Study. J Assoc Physicians India. 2003; 51:771-7.
2. Liu S, Serdula M, Janket SJ et al. A prospective study of Fruits and Vegetables intake and the risk of T2DM in women. Diabetes Care. 2004; 27:2993-6.
3. Solberg L, Desai J, O'Connor P, and Bishop D, Devlin H. Diabetic patient who smoke: Are they different? Ann fam Med. 2004; 2:26-32.
4. Scott R A. The link between family history and risk of Type 2 Diabetes is not explained by anthropometric, lifestyle or genetic risk factors: the EPIC-InterAct study. Diabetologia. 2013; 56:60–69.
5. Bhatti JS, Bhatti GK, Joshi A,Rai S, Mastana SS, Ralhan SK et al. Identification of risk factors for the high prevalence of T2DM & its complications in Punjabi population. North Indian Diabetes Study: A case control study. International Journal of Diabetes in Developed Country. 2007; 27:108-115.
6. Zimmet P, Alberti KG and shaw, Global and societal implications of the diabetes epidemic. Nature. 2001; 414:782 – 787.
7. Ramachandran A, Snehlata C, Kapur A, Vijay V, Mohan V, Das AK, Rao VP, Yajnik SC, Kumar PMK, Nair DJ. Diabetes epidemiology study group in India (DESI). High prevalence of Diabetes and impaired glucose tolerance in India- National Urban Diabetes Survey (NUDS). Diabetologia . 2001; 44: 1094-1101.
8. Unwin N, Whiting D, Roglic G. Social determinants of diabetes and challenges of prevention. Lancet. 2010; 375: 2204–5.
9. Colagiuri S, Borch-Johnsen K, Glumer C. There really is an epidemic of Type 2 Diabetes. Diabetologia. 2005; 48: 1459-1463.
10. Sicree R, Shaw J, Zimmet P, Diabetes and impaired glucose tolerance in : Gan D, editor, Diabetes atlas. International. Diabetes Federation. 2006; 15-103.
11. Krentz AJ, Bailey JC. Type 2 Diabetes in practice. In practice series. 2001; 4.
12. Huizinger MM, Rothman RL. Addressing the diabetes pandemic; A comprehensive approach Indian J Med Res. 2006; 124: 481- 4.

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