

Prevalence of Chronic Complications among Patients with Type 2 Diabetes Attending the Diabetic Clinic

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ABSTRACT

Background: Globally, type 2 diabetes mellitus (T2DM) has become one of the most important chronic public health problems. T2DM is a growing cause of disability and premature death, mainly through cardiovascular disease and other chronic complications. Studies conducted in various countries have shown increased incidence of micro as well as the macro vascular complications among the diabetic patients. Hence; the present study was conducted for assessing the prevalence of Chronic Complications among Patients with Type 2 Diabetes.

Materials & Methods: A total of 200 patients with confirmed diagnosis of type 2 diabetes were enrolled. Complete demographic and clinical details of all the patients were obtained. The level of glycemic control was defined as optimal (HbA1c < 6.5%), fair (6.5% ≤ HbA1c ≤ 7.5%), and poor (HbA1c > 7.5%). Only chronic complications (categorized as cardiovascular conditions, cerebrovascular conditions, nephropathy, ocular lesions, neuropathy, and diabetic foot problems) that developed after the proper diagnosis of T2DM and could be attributed to diabetes were considered in this study.

Results: A total of 200 patients with confirmed diagnosis of type 2 diabetes were enrolled. Chronic complications were

seen in 121 patients. Hence; the prevalence of chronic complications in type 2 diabetic patients was 60.5 percent. Prevalence of these complications was higher among patients with poor glycaemic control.

Conclusion: Significant proportion of type 2 diabetic patients is affected with chronic complications. Prevalence of these complications directly correlates with severity of glycaemic control.

Key words: Chronic Complications, Diabetic.

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INTRODUCTION

Globally, type 2 diabetes mellitus (T2DM) has become one of the most important chronic public health problems. T2DM is a growing cause of disability and premature death, mainly through cardiovascular disease and other chronic complications. It is estimated that the global number of adults suffering from any form of diabetes will reach 285 million in 2010 and further increase to 439 million in 2030, most of them T2DM cases.¹⁻³

The morbidity and mortality related to diabetes is a great global concern. The data from various studies has found diabetes as the growing cause of disability and premature death mainly through its chronic complications. Studies conducted in various countries have shown increased incidence of micro as well as the macro vascular complications among the diabetic patients. Diabetes mellitus is one of the major risk factors for cardio vascular

diseases. Approximately 30% of patients treated in cardiovascular intensive care units have diabetes.⁴⁻⁶ Chronic hyperglycemia results in multisystemic complications of the eyes, nerves, kidneys, heart, and blood vessels. The disease burden of diabetes is mainly attributed to the morbidity and mortality associated with microvascular and macrovascular complications. The UK prospective study done among patients with type 2 diabetes showed that intensive glycemic control reduces the risk of development of micro- and macrovascular complications. However, a significant number of patients harbor these complications as well as other metabolic risk factors even prior to the diagnosis of diabetes.⁵⁻⁷ Hence; the present study was conducted for assessing the prevalence of Chronic Complications among Patients with Type 2 Diabetes.

MATERIALS & METHODS

The present study was conducted for assessing the prevalence of Chronic Complications among patients with Type 2 Diabetes. A total of 200 patients with confirmed diagnosis of type 2 diabetes were enrolled. Complete demographic and clinical details of all the patients were obtained. The diagnosis of diabetic complications was checked with patients' medical charts, and confirmed by doctors during the investigation. HbA1c levels of all the patients were evaluated. The level of glycaemic control was defined as optimal (HbA1c < 6.5%), fair (6.5% ≤ HbA1c ≤ 7.5%), and poor (HbA1c > 7.5%). Only chronic complications (categorized as cardiovascular conditions, cerebrovascular conditions, nephropathy, ocular lesions, neuropathy, and diabetic foot problems) that developed after the proper diagnosis of T2DM and could be attributed to diabetes were considered in this study. All the results were recorded in Microsoft excel sheet and were

analysed by SPSS software. Chi-square test was used for evaluation of level of significance.

RESULTS

A total of 200 patients with confirmed diagnosis of type 2 diabetes were enrolled. Chronic complications were seen in 121 patients. Hence; the prevalence of chronic complications in type 2 diabetic patients was 60.5 percent. Among them, cardiovascular complications were seen in 36 percent of the patients. Renal complications were seen in 15 percent of the patients. Ocular manifestations were seen in 10.5 percent of the patients. Cerebrovascular complications were seen in 8 percent of the patients. Diabetic foot lesions and peripheral neuropathy was seen in 7.5 percent and 6.5 percent of the patients respectively. Prevalence of these complications was higher among patients with poor glycaemic control.

Table 1: Chronic complications associated with type 2 diabetes

Complications	Number	Percentage
Cardiovascular	IHD	23
	Chronic heart failure	21
	Hypertension	28
Renal	Microalbuminuria	12
	Renal failure	18
Ocular	Proliferative diabetic retinopathy	10
	Non Proliferative diabetic retinopathy	11
Cerebrovascular	Stroke	8
	Transient ischemic attack	8
Diabetic foot	Foot ulcer	9
	Foot amputation	6
Peripheral neuropathy	Peripheral diabetic neuropathy	7
Total	121	60.5

Graph 1: Correlation of Chronic complications with glycaemic profile among patients with type 2 diabetes

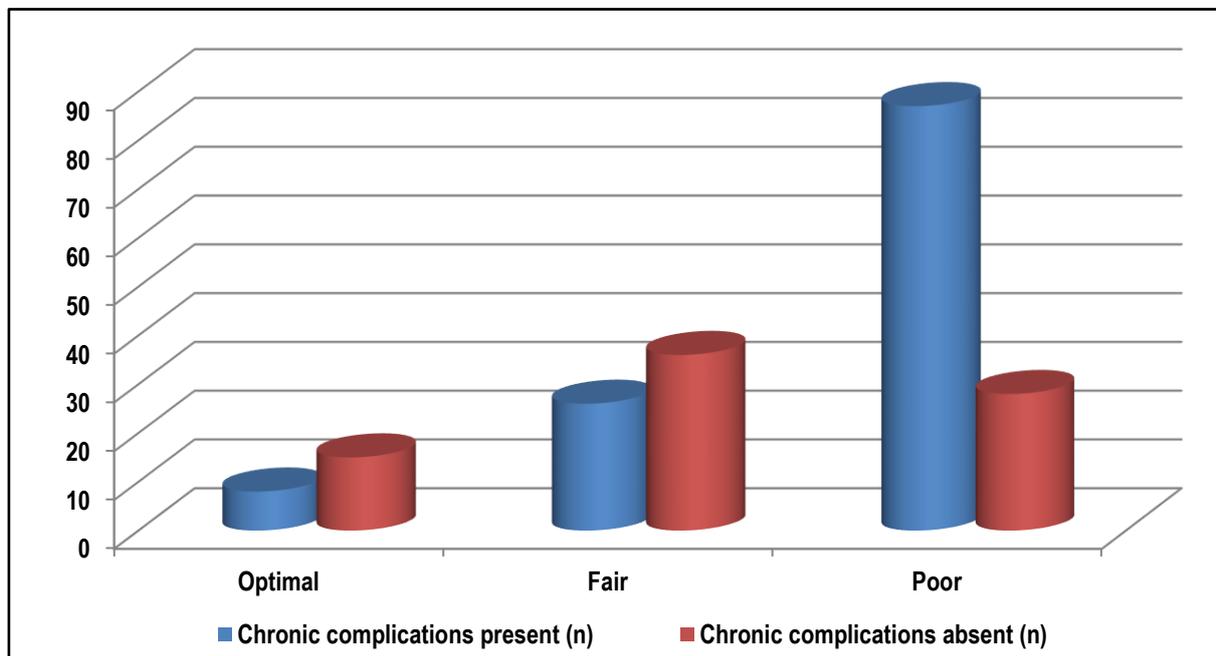


Table 2: Correlation of Chronic complications with glycaemic profile among patients with type 2 diabetes

Glycaemic profile	Chronic complications present (n)	Chronic complications absent (n)	Total
Optimal	8	15	23
Fair	26	36	62
Poor	87	28	115
Total	121	79	200
Chi-square value	10.84		
p- value	0.000 (Significant)		

DISCUSSION

The diabetes mellitus is well known for its significant effect on the morbidity and mortality of the population caused by its micro and macro vascular complications resulting in huge burden on the health care system. The knowledge of the epidemiology of its Co-morbidity factors and the prevalence of its complication is very important for formulating the necessary policies and action plan. Data from prospective and cross-sectional studies consistently point to the fact that diabetic patients are more likely to develop micro- as well as macro-vascular conditions. Prior to the onset of diabetes, many patients already show metabolic abnormalities, such as dyslipidemia, further contributing to the development of complications.^{8, 9} Hence; the present study was conducted for assessing the prevalence of Chronic Complications among Patients with Type 2 Diabetes.

A total of 200 patients with confirmed diagnosis of type 2 diabetes were enrolled. Chronic complications were seen in 121 patients. Hence; the prevalence of chronic complications in type 2 diabetic patients was 60.5 percent. Among them, cardiovascular complications were seen in 36 percent of the patients. Renal complications were seen in 15 percent of the patients. AS Shera et al, in a previous study, determined the prevalence of chronic complications and associated factors in type 2 diabetes in 500 diabetic patients, age > or = 25 years. Of the 500 diabetic patients examined (160 males, 340 females, mean age 55.2 10.6 years), retinopathy was seen in 43%, neuropathy in 39.6% and foot ulcers in 4%. Macrovascular complications were encountered in 102 diabetic patients, with angina in 85 (17%), heart attack in 25 (5%) and stroke in 13 (2.6%). The prevalence of diabetic microvascular complications was higher in people with poor glycaemic control, longer duration of diabetes and associated hypertension and obesity.¹⁰

In the present study, ocular manifestations were seen in 10.5 percent of the patients. Cerebrovascular complications were seen in 8 percent of the patients. Diabetic foot lesions and peripheral neuropathy was seen in 7.5 percent and 6.5 percent of the patients respectively. Liu Z et al described the prevalence of chronic complications among type 2 diabetic outpatients. The prevalence of cardiovascular and cerebrovascular conditions, neuropathy, nephropathy, ocular lesions and foot disease were 30.1%, 6.8%, 17.8%, 10.7%, 14.8% and 0.8%, respectively. Chronic complications are highly prevalent among type 2 diabetic outpatients, the glycemic control of diabetic patients with chronic complications was poor, and future efforts should be directed at intensive blood glucose control, strengthening early diagnosis and improving case management to prevent and minimize the occurrence of complications.¹¹

In another study conducted by Khan AR et al, authors determined the prevalence of chronic complications and comorbidity among the type 2 diabetics attending the primary health care centers. The overall prevalence of complication among the female subjects was significantly higher than the male (78.16%, 95% CI 76.76-84.40 Vs 65.76%, 95% CI 61.63-69.89, p=0.038). The chronic complication was higher among the urban population than the rural population (77.3% 95% CI 72.88-80.26 Vs 69.78% 95% CI 66.1%-76.92%, p=0.035). The result showed a high percentage of chronic complications among the diabetic patients.¹²

CONCLUSION

Significant proportion of type 2 diabetic patients is affected with chronic complications. Prevalence of these complications directly correlates with severity of glycaemic control.

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