

Research Article

Pattern of Presentation of Newly Diagnosed Diabetes Mellitus Among Sudanese Patients

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Abstract

The objectives of this study is to know the pattern of presentation of newly diagnosed diabetic patients among Sudanese, and how late they present, after developing micro and macro vascular complications. Among 620 diabetic patients attending a medical clinic for ten month duration, 44 patient were newly diagnosed diabetes mellitus patients. 54.5% were male and 45.5% female, with the mean age of 49.6 year, hemoglobin A1c% (Hb A1c) ranging from 7.1 to 15.9 mean of (11.02%). Most of them have positive family history of diabetes 75%, other risk factors include obesity 47.7, and hypertension 31.8%. 7 patients out of 44 patients (15%). presented with micro and macro vascular complications which was not related to the level of HbA1c at presentation. These results make the need for screening for diabetes mellitus in those with risk factors is important for early diagnosis to prevent or delay the development of these complications.

Main Objective

To study the pattern of presentation of newly diagnosed diabetic patients among Sudanese population.

Specific Objective

- To study the risk factors for diabetes mellitus.
- To know how late is the presentation, after the development of the acute and chronic diabetic complication.
- To study the relation between the complication at presentation and the risk factors.

Keywords: Type2 diabetes mellitus (T2DM), Hemoglobin A1c (Hb A1c), Hypertension (HTN)

Introduction

Diabetes mellitus is a growing health problem, leading to morbidity and mortality. Type 2 diabetes mellitus (T2DM) is increasing and the prevalence and number of adults affected, have risen faster in lower income than in high-income countries. Sudan is one of the lower income country, with poor income and resources. Diabetes Mellitus is common in Sudan, with some studies showing the prevalence is 19% of the adult population. Type 2 diabetes mellitus is sometimes diagnosed when chronic complications have already developed and one third of all people with type 2 diabetes mellitus may be undiagnosed until late. this make the screening for diabetes mellitus for those at high risk of developing diabetes is crucial [1]. Early diagnosis and control of blood sugar will delay if not prevent the development of micro and macro vascular complications.

Methodology

This is a retrospective study for the patients attending a medical clinic in the period from April 2022 to February 2023 (about 10 months duration), from 620 diabetic patients attending the clinic, 44 patients were newly diagnosed diabetes mellitus. 24 male patients

(54.5%) and 20 female (45.5%) out of them 7 patients (15%) presented with micro and macro vascular complication.

The risk factor for most of them was the family history of diabetes 75.0%, followed by obesity 47.7%, hypertension 31.8%, and a single case with past history of gestational diabetes.

The study showed that males have significantly more obese than females (62.5% compared to 30.0%) p value <.032.

The mean age at presentation was 49.6 year. Hemoglobin A1c (HbA1c) at presentation was varying from 7.1 to 15.9 mean of (11.02%) (Table 1).

7 out of 44 patients (15%) have obvious diabetic complication at presentation including peripheral neuropathy 4.6%, diabetic septic foot, chronic kidney injury, ischemic heart disease, diabetic ketoacidosis and diabetic retinopathy 2.3% for each (Table 2).

Table 1: Mean age.

	Mean	Std. Deviation	N
AGE	49.68	13.194	44
A1c%	11.018	2.2152	44

Table 2: Diabetic complication.

Frequency		Percent	Valid Percent
Valid	CHRONIC KID INJ	1	2.3
	DIAB KETO ACIDOS	1	2.3
	DIAB SEP FOOT	1	2.3
	IHD CHF	1	2.3
	NO	37	84.1
	PERIPH NEUROPATH	2	4.5
	RETINOPATHY	1	2.3
	Total	44	100.0

Table 3: Relation between the presentation with diabetic complication and A1c% at presentation.

A1c% COMPL	Mean	N	Std. Deviation
CHRONIC KID INJ	8.300	1	.
DIAB KETO ACIDOS	7.800	1	.
DIAB SEP FOOT	7.100	1	.
IHD CHF	10.500	1	.
NO	11.508	37	1.9916
PERIPH NEUROPATH	8.150	2	2.3335
RETINOPATHY	9.000	1	.
Total	11.018	44	2.2152

There was no relation between the presentation with diabetic complication and A1c% at presentation (Table 3).

Discussion

This study describes the pattern of newly diagnosed diabetes mellitus in Sudan, and the risk factors and how late they present, after the appearance of micro and vascular complication. Similar to other studies in Africa, the age of presentation of newly diagnosed diabetes in our study was in younger age group (the mean is 49.6 year), in contrast to with that from higher income countries where diabetes incidence peak is between 60 and 70 years [2] The risk factor for developing diabetes in our study was mainly the non- modifiable risk factor, the familial predisposition, and family history of DM similar to that in Saudi Arabia, in addition to the other modifiable risk factors like obesity, hypertension and sedentary lifestyle [3]. The risk factors for developing type 2 diabetes mellitus in Sudan is high, according to the study done in North of Sudan, using Finnish score as a risk assessment for predicting type 2 diabetes mellitus, more than half of the population of the study group were at risk of developing type 2 diabetes mellitus, and if not discovered early are prone of developing diabetic complications [4]. The development of complications was not related to the level of HbA1c at presentation, diabetic complications may be related to the chronicity of the disease, rather than the blood sugar at the time of diagnosis Peripheral neuropathy was the most common diabetic complication at presentation, 28.5% of cases with micro and macro vascular complication at initial presentation similar to study done in Pakistan [5]. Peripheral neuropathy patients present with symptoms of numbness and paraesthesia, with impaired sensation

[6]. Patients with diabetic nephropathy present with proteinuria, renal impairment or chronic kidney injury. Diabetic retinopathy patients present with symptoms of blurring of vision, headache, pain in the eyes and impairment of vision. Final examination will show background diabetic retinopathy, new vascularization and intra retinal hemorrhage leading to loss of vision and blindness [6].

Notice: Formal visual examination wasn't done in all patients.

Recommendation

We recommend screening for those who are at risk of developing diabetes mellitus, specifically those with family history of DM and other modifiable risk factors like obesity or sedentary lifestyle, so we can avoid the late presentation after developing micro and macro vascular complications.

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