



Prevalence of diabetes mellitus type 2 and determination the most effective and successively medications in Irbil

Lamea M. Ahmed¹ and Basema S. Ahmed²

¹Technical institute, Kirkuk and ²College of Pharmacy, Howler Medical University, Irbil, Iraq.

Abstract

Diabetes mellitus is a major medical public health condition and considered as a metabolic disorder of multiple etiologies characterized by chronic hyperglycemia caused by inherited and/or acquired deficiency in production of insulin or by ineffectiveness of the insulin produced and lead to serious complications arising from microvascular and macrovascular disease. Although treating high blood pressure and dyslipidemia in diabetic patients is as important to prevent serious complications. The objective of this study was to determined the prevalence of diabetes mellitus type 2 and study their other related factors associated, main complications with diabetes and medical treatments used to treat and control this conditions. A totally of 130 participated patients were infected with type 2 diabetes mellitus and data were collected in emergency department of Rzgary and Jumhury hospitals in Irbil for the period from January 2010 to the end of December 2011. The medical history of each patient was taken which include age, gender, family history, educational level, BMI and treatment types were patients being on insulin or oral hypoglycemic drug and others to related complications. Diabetes mellitus type 2 showed highest rate among age 48-58 and 59-69 years were 28.4% and 23.8% respectively and family history associated with increase appearance of diabetes mellitus 59.2%. Illiterate–primary educational level recorded highest percentage 42.3% than others educational levels, the highest percentage of diabetes mellitus was appear among overweight and obese patients were 40% and 37.6% respectively. Complications of diabetes were reviewed in the study showed diabetic mellitus with hypertension 29.7% followed by diabetic patient with cardiovascular disease was 18% then dyslipidemias 11% while the less percentage of feet disorders were 6%. This study showed higher patients treated by the oral antidiabetic drugs 40% followed by insulin only 30% then oral antidiabetic with insulin 24%.

Key words: Diabetes mellitus, Prevalence, Related disease, Medications, Irbil.

Introduction

Diabetes mellitus is defined as a group of metabolic disease that's common feature is an elevated in a blood glucose level (hyperglycemia) (WHO, 1980) and the chronic hyperglycemia is associated with the most long-term consequences of complications of diabetes are often two groups with microvascular–retinopathy, nephropathy, neuropathy disease and macrovascular ischemic heart disease, stroke, peripheral vascular disease and may association with certain cancer (The Emerging Risk Factors, 2011; The Expert Committee on the Diagnosis and Classification of Diabetes Mellitus, 2002). Risk factor of diabetes includes obesity, physical inactivity, ageing and genetic predisposition that increase incidence of

the disease, the prevalence was higher in urban than rural areas in developing countries (Riaz *et al.*, 2009; Joshy *et al.* 2006). Diabetes mellitus is a chronic disease caused by inherited and /or acquired deficiency in production of insulin by the pancreas, or by ineffectiveness of the insulin produced. It is a silent killer disease and affects millions of peoples in the world (Resnick *et al.*, 2000; Shaw *et al.*, 1999). Metabolic forms of type 2 diabetes, this accounts for 90-95% of diabetic cases according to National Institutes of Health and some of these patients have prediabetes that went uncontrolled, once considered a disease of middle and old age, type 2 is also becoming more common in youths as the incidence of childhood obesity grows. Type 1 diabetes formerly known as

juvenile diabetes, this form generally develops in children and young adults and occur later in life, individuals with autoimmune diabetes who overeat, are sedentary, gain weight or have certain genes can, like people with metabolic forms of diabetes, develop insulin resistance, this state is known as double diabetes (Harris, 1998; Gatling *et al.*, 2001).

Diabetes symptoms might not detected in some patients due to their symptoms attributed with other causes and the symptoms indicator of and about the most variable diseases include polydipsia, polyuria, polyphagia, vision problem, skin problems, fatigue and dizziness, type 1 diabetes can develop rapidly and often occurs after an illness but symptoms may be mistaken for other common conditions. Type 2 diabetes can take many years to develop and sometimes becomes apparent only after long-term complications occur, such as sexual dysfunction or leg pain that is due to diabetic neuropathy or claudication (Riaz *et al.*, 2009; Bolukbasi *et al.*, 1998; Hajjaji, 1995) Diet and exercise are crucial in managing diabetes, especially type 2 diabetes and also important to avoid smoking and drink enough water to avoid dehydration. All patients with type 1 diabetes require regular insulin therapy to live, some patient with other forms of diabetes, including gestational diabetes, type 2 diabetes also are prescribed insulin. Many patient are prescribed antidiabetic agents, the oral diabetes medications include alpha-glycosidase inhibitors medication biguanides, meglitinides, sulfonylurea, thiazolidinedione and new group called DPP-4 inhibitors, there are also injected medication known as in cretin mimetic and synthetic amylin in addition patients may be prescribed a glucagon kit specially in cases of severe hypoglycemia or insulin shock. Patients with diabetes are often prescribed other medications including antihypertensive and cholesterol drugs to treat related conditions, antihypertensive such as ACE inhibitors and angiotensin-II receptor blockers (Gilbert *et al.*, 1995; Herman *et al.*, 1998). Objective of the present study are to determine the prevalence of diabetes mellitus type 2 among women and men and their related factors associated and complications with diabetes mellitus type 2 and medical treatments that used to treat diabetes mellitus.

Materials and Methods

Retrospective study was concluded in emergency department of Rzgary and Jumhury hospital in Irbil for the period from January 2010 to the end of December 2011. The 130 participated patients were infected with type 2 diabetes and data were collected with a physician confirmed diagnosis of diabetes mellitus. The medical history of each patient was taken which include age, gender, family history, educational level history of any other disease and type of treatment. The data to calculate body mass index (weight in Kg / height in m², participates were classified as normal weight if their BMI was less than 25, overweight if their BMI was from 25 to 29 and obese if their BMI was 30 or greater history of diabetes or fasting glucose level (measured after ≥8 hours of fasting or overnight fasting) and then sent to laboratory where fasting blood glucose were measured impaired fasting glucose as form 100 mg/dl to 125 mg/dl and diabetes as 126 mg/dl or greater or being on insulin or oral hypoglycemic medications and other diabetic patients were being hypertensive if they are receiving antihypertensive treatment or if systolic high blood pressure as more than 140 mmHg and/or diastolic blood pressure more than 90 mmHg, the blood pressure was measured after 30 min rest. laboratory diagnosis of triglyceride and total cholesterol level as having a cholesterol level of 240 mg/dl or greater or being on high cholesterol medication. the study evaluate the prevalence of most common complication in type 2 diabetic patient and sought information are on controlling elevation of level of the blood sugar by medication and treatment another related disease.

Results and Discussion

The present study conducted in 130 patients with diabetes mellitus type 2 showed that was common among women 72(55.3%) than man 58(44.6%)(Table 1). According to age group of diabetes appear highest rate among age 48-58 and 59-69 years were 37(28.4%) and 31(23.8%) respectively followed by the rate among 37-47 was 22(16.9%) then 70 years old and above were 18(13.8%) while the less rate was among 15-25 and 26-36 were 8(6.1%) and 14(10.7%) (Table1). Table (2) showed the different parameter associated with increase appearance of diabetes mellitus as family history and appeared more patients those had family history 77(59.2%) more likely to appear the disease with those without

family history 53(40.3%). Illiterate –primary educational level recorded highest percentage 55(42.7%) than other educational levels were intermediated–secondary 48(36.9%) and higher education 27(20.7%), obese diabetic patient record highest percentage 49(37.6%), diabetic patients with overweight >25 kg/m were 52(40%) while less percentage among diabetic patients with normal weight 29(22.3%). Complications of diabetes were reviewed in the study Table (3) showed diabetic mellitus with the hypertension record the higher percentage 29.7% followed by diabetic patients with cardiovascular were 18% then dyslipidemias 11% while the less percentage of feet complication include sores or irritant were record 9%. According to medical treatment to diabetes mellitus and their reduced disease Table (4) showed higher patient treated by oral antidiabetic drug 40% followed by insulin only 30% then oral antidiabetic drug with insulin 24% the percent of another medical complications like hypertensive drug and lipid lowering drug record percent 25% and 10% respectively.

Diabetes mellitus is one of the most common chronic diseases in nearly all countries and continues to increase in numbers and significance, as changing lifestyles lead to reduced Physical activity and increased obesity (Shaw *et al.*, 1999). Ibrahim *et al.* (2012) record the prevalence rates among adults of the Arabic speaking countries as a whole range between 4-21% with the lowest being in Somalia 4.2% and the highest in Kuwait 21.2% while in Iraq 9.3%. The study identified the highest prevalence at age group 48- 58 and 37- 47 were 28.4% and 23.8%. While Shaw *et al.* (1999) recorded the word prevalence of diabetes among adult (aged 20-79 years) will be 6.4% and the majority with diabetes are aged over 60 years ,whereas for developing countries most people with diabetes are of working age, between 40 and 60 years, The Emerging Risk Factors (2011) recorded that the age more affected was 55 years old. According to the gender showed women 55.3% more affected than men 44.6% and in agreement with Famuyiwa *et al.* (1992) founded prevalence of diabetes mellitus more than in women also, Joshy *et al.* (2006) founded women more affected 22.1% than men 19.9% and (The Emerging Risk Factors, 2011) record diabetes mellitus in women was 48%, while others showed mortality to diabetes being equal in men and women (Herman *et al.*, 1998). Diabetic mellitus

appeared most patients those had family history 59.2% more likely to be appear the disease with those without family history 40.7 % and this agreement with Gunaid *et al.* (1997) showed appositive family history increase relative of index patient was observed in 33.7%. Illiterate –primary education level recorded highest percentage 42.3% than other educational levels were intermediated–secondary 36.9% and higher percentage education 20.7%, Joshy *et al.* (2006) founded the level of education allows increased awareness about type 2 diabetes mellitus, complication and management with Zindah *et al.* (2004) showed highly percentage with secondary or technical school and lower in university. While obese adult patients record the highest percentage of the diabetes mellitus 37.6% followed by overweight record 40% and this in agreement with (Zindah *et al.*, 2004) that obese adult hard an adjusted odds ratio of 3.27% and mostly in women and (The Emerging Risk Factors, 2011) found children who develop type 2 diabetes are typically overweight or obese. In Iraq (Mansour, 2009) founded 90% of individual with type 2 diabetes are either overweight or obese. (The Emerging Risk Factors, 2011) record death in diabetic complications from cancer 1.25%, from vascular causes 2.32% and 1.73% from other medical causes. (Herman *et al.*, 1998) showed microvascular and neuropathic complications at diabetes are a major clinical and public health problem in Egypt, Shaw *et al.* (1999) showed microalbuminuria is common complication of diabetes and increase risk of cardiovascular events and mortality Hypertension was one complicated disorder related with diabetic patient in the study record 29.7% were mostly among other complications , (Gilbert *et al.*, 1995)found hypertension is twice as prevalent in diabetic as in non-diabetic patients and different classes of antihypertensive drugs to be consider like ACE inhibitor and another so reduction of blood pressure prevent another diabetic complications. The cardiovascular disease was another complications recorded in the study were others (The Emerging Risk Factors, 2011) found at least 68%diabetic patients die from heart disease 16% die of and heart disease death rates among adults with diabetes are 2-4 times higher than the rate for adult without diabetes another complication in the study foot affection record, Joshy *et al.* (2006) showed diabetic foot disease about 25.7

percentage in 1993. While (Mansour, 2009) founded 2.7% developed diabetic foot and 0.7% had related lower extremity were amputation. Diabetic medication in study record highly percentage of patient with oral antidiabetic drug 40% by followed by insulin only 30% and lower percentage with oral antidiabetic and insulin 24% (Meisinger *et al.*, 2008) showed more frequently treated with insulin alone then in insulin in combination with an oral diabetic therapy.

Conclusions

Diabetes mellitus type 2 mostly appears in women at age 48-58 and 59-69 years within family history. On an obese patients recorded highest percentage as well as in patients with Illiterate–primary education level .Control glucose levels as

well as blood pressure and cholesterol levels can delay or prevent complications disorder of diabetes to reduce the risk of diabetes. Oral antidiabetic drug was highly used followed by insulin therapy.

Recommendation

Patients with risk factors for diabetes should be screened regularly with glucose tests while those who are diagnosed with diabetes usually require regular monitoring by various healthcare providers to manage their condition and reduce the risk of complications. Majority of studies of diabetes prevalence to indicate the type of diabetes and study new antidiabetic agent, glucose monitoring and insulin pump.

Table (1): Prevalence of diabetes mellitus type 2 according to age and gender.

Age	Male	Female	Total
15- 25	5	3	8(6.1%)
26- 36	6	8	14(10.7%)
37- 47	8	14	22(16.9%)
48- 58	16	21	37((28.4%)
59- 69	15	16	31(23.8%)
70- 80 and above	8	10	18(13.8%)
Total	58(44.6%)	72(55.3%)	130(100%)

Table (2): Medical parameters associated with diabetes mellitus type 2.

Parameter	Percentage
Family history:	
Yes	77(59.2%)
No	53(40.7%)
Education level:	
Illiterate-primary	55(42.3%)
Intermediate –secondary	48(36.9%)
Higher education	27(20.7%)
BMI index:	
Normal weight (<25Kg/M)	29(22.3%)
Overweight (>25 Kg/M)	52(40%)
Obesity (>30 Kg/M)	49(37.6%)

Table (3): Complicated disease related with diabetes mellitus.

Complicated disease	Percentage
Hypertension	29.7%
Cardiovascular disease	18%
dyslipidemias	11%
Feet sores or irritation	6%

Table (4): Medical treatment for diabetes Mellitus and their complicated disorder.

Medication	Total
Oral antidiabetic drug	40%
Insulin only	30%
Oral antidiabetic drug with insulin	24%
Antihypertensive drug	25%
Lipid lowering drugs	35%

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