

Diabetes Mellitus Is A Global Problem

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Abstract

In this issue of the Internet Journal of Health an interesting article addressing Diabetes Mellitus (DM) in menopausal American women [1]. This article addresses a special issue affecting single sector of the population.

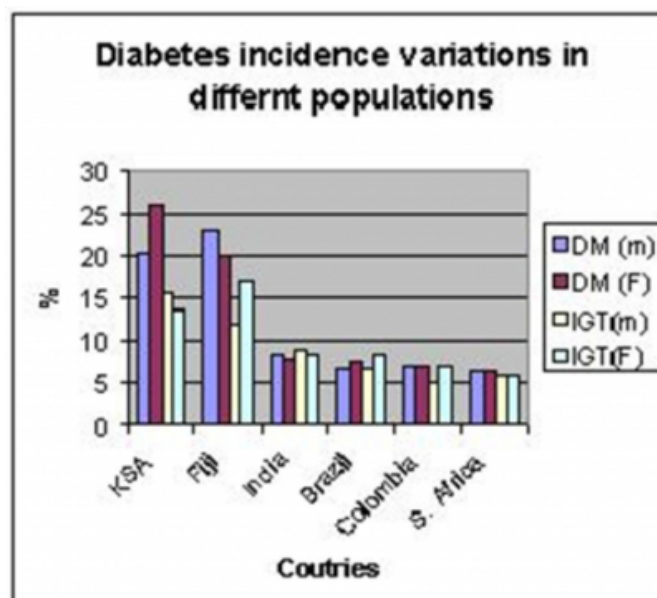
DM is the most common metabolic disorder, its prevalence varying widely worldwide and ranging from as low as <1% to >50% [2,3,4,5,6,7]. It is due to insulin deficiency or inefficiency, which results in a state of hyperglycaemia [8]. Insulin-dependent diabetes mellitus (IDDM) and non-insulin-dependent diabetes mellitus (NIDDM) are the two primary types and are the most widely distributed [9, 10]. Factors involved in influencing the prevalence of diabetes mellitus include socioeconomic status, age, sex, genetic susceptibility, lifestyle and other environmental factors. It has been shown that the prevalence of diabetes is constantly on the rise and this is believed to result from urbanization and socioeconomic developments, which are associated with rapid changes in lifestyle [4,5,6, 7]. In developing countries, the prevalence of diabetes is increasing, where there are, as estimated by the World Health Organization (WHO), around 70 million people suffering from diabetes mellitus [11]. Thus, it is essential that every country attempts to assess the magnitude of the problem and takes steps to control and prevent diabetes mellitus and provide appropriate care [12,13].

Modern life and advances in medicine shed good light on the patho-physiology and complication of what is generally known as diabetes mellitus (Sweet urine). It would be very tragic to see young individual struggles with juvenile diabetes (Type I, Insulin Dependant Diabetes (IDD)). But soon medicine finds that Maturity onset diabetes (Type II diabetes, NIDDM).

World Health Organization (WHO) in world survey of the problem indicated that this disease does not spare poor or rich developed or non developed population [Fig. 1]

Figure 1

Figure 1: Diabetes incidence happens in wealthy, poor, developed and undeveloped countries in males (M) and females (F) from Diabetes Mellitus (DM) of impaired glucose tolerance (IGT)



Diabetes Mellitus definition; It is a syndrome, a collection of disorders hallmarked by hyperglycemia; It is common condition the prevalence in general is 3-7%.

Classification of DM & associated categories of glucose intolerance according to WHO working group [2]

- Clinical classes
 - Diabetes Mellitus
 - Impaired glucose tolerance
 - Gestational diabetes mellitus
- Statistical risk classes
 - previous abnormality of glucose tolerance

- Potential abnormality of glucose tolerance
- Insulin dependent diabetes mellitus
- Non-insulin dependent diabetes mellitus
- non obese
- obese
- Malnutrition-related diabetes mellitus
- Other types of DM associated with certain diseases and syndrome
- Conditions presenting as non-insulin dependant diabetes mellitus NIDDM:
 - Common NIDDM
 - Uncommon types NIDDM
 - Genetic defects & Beta cell dysfunction
 - Genetic defects & insulin resistance
 - Acquired insulin resistance syndromes
 - Drug-induced diabetes
 - Endocrine diseases
 - diabetes associated & other genetic syndromes
 - Pancreatic disease
 - Diseases of hormonal etiology
 - Drug induced or chemically induced conditions
 - Abnormalities of insulin or its receptors
 - Certain genetic syndromes
 - Miscellaneous

RANDOM SERUM GLUCOSE, (WHO)

In the dilemma of diagnosis of DM the three transitional group

- Group 1: No DM <5.5 mmol/L
- Group 2: DM >11.1 mmol/L
- Group 3: borderline glucose intolerance test (GTT) 5.5-11.1 mmol/L
- GTT is done; either DM >11.1mmol/L or IGT 7.8>--<11.1 mmol/L

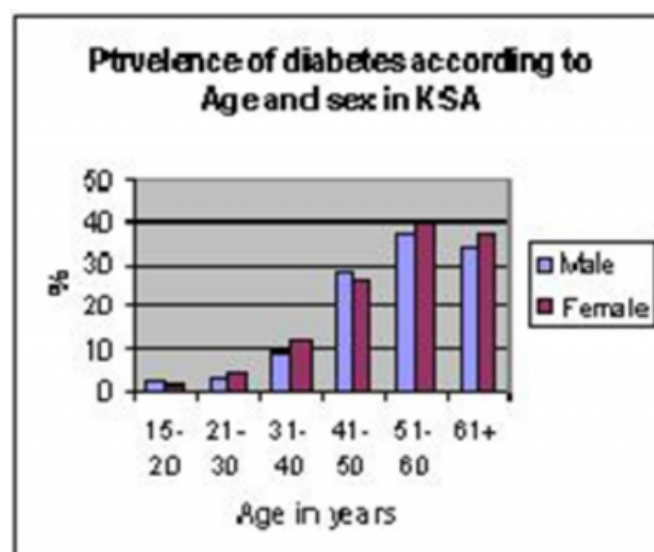
Figure 2

Table 1: Presentation of IDDM

% of patients	Pathophysiology	Clinical features
95	Tissue breakdown	Weight loss
100	Hyperglycemia	Thirst, polyurea
100	Osmotic diuresis	Nocturia
40	Osmotic changes	Eye blurred vision
16	Ketogenesis	Ketoacidosis

Figure 3

Figure 2: Prevalence of diabetes according to Age and sex in KSA (1990-1993)



HOW TO CONTROL BLOOD SUGAR?

There are now strict medical regimes supported by nutritional and exercise pattern of life to go hand in hand. The management may differ from time to time or during period of stress diseases or surgical operations and it start as first item and finally goes to the last treatment of the following:

- No insulin & glucose
- Oral hypoglycemics (HGD)
- Oral HGD >> Insulin
- Insulin s.c.
- Insulin i.v. bolus
- Insulin infusion
- Insulin Dextrose Infusion

THE RESULT OF UNCONTROLLED BLOOD SUGAR

The result of insulin impairment or lack can produce acute and chronic histopathological effects. Acute changes of untreated or poorly controlled diabetes mellitus include dehydration due to osmotic diuresis as sequence of glucosuria. Accumulation of lactic acid will lead to acidemia, fatigue and weight loss generally. Muscle wasting does contribute to this weight loss. If hyperosmolar non-ketotic hyperglycaemia develop coma may occur and if not properly treated death would occur. Infection may precipitate this condition [14, 15]. Diabetic patients frequently develop neuropathy, most commonly a distal symmetrical sensory or sensorimotor polyneuropathy with variable degree of autonomic involvement [16].

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