Epidemiological Study of Insulin-Dependent Diabetes Mellitus (IDDM) Among Primary School Students in Heliopolis District

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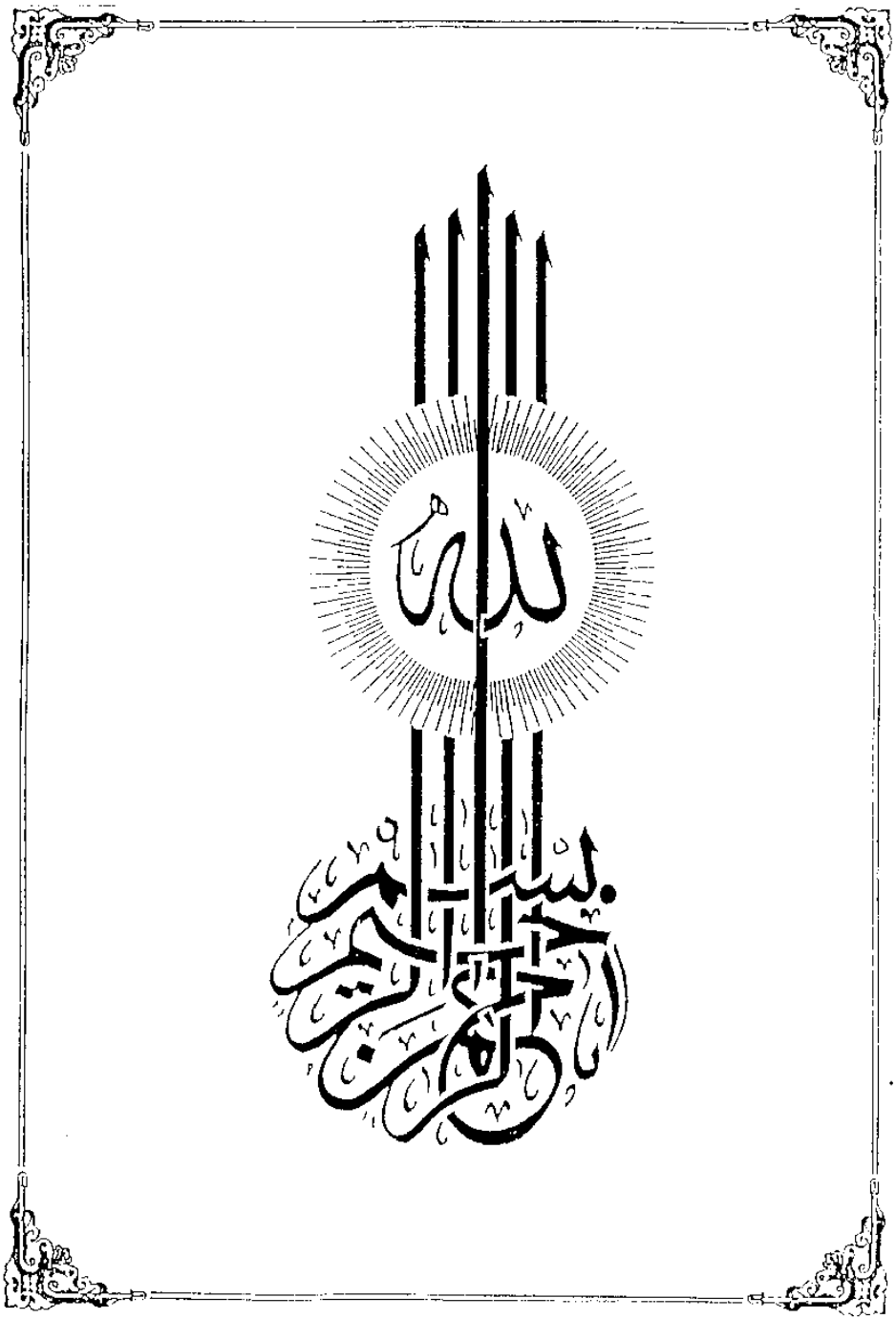

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LIST OF ABBREVIATIONS

D.M.	:	Diabetes mellitus
GDM	:	Gestational diabetes mellitus
HLA	:	Human leucocyte antigen
ICA	:	Islet cell antibodies
ICCA	:	Islet cell cytoplasmic antibodies
ICSA	:	Islet cell surface antibodies
IDDM	:	Insulin-dependent diabetes mellitus
IGT	:	Impaired glucose tolerance
MRDM	:	Malnutrition related diabetes mellitus
NDDG	:	National Diabetes Data Group
NIDDM	:	Non-insulin-dependent diabetes mellitus
OGTT	:	Oral glucose tolerance test
Pot.AGT	:	Potential abnormality glucose tolerance
Prev.AGT	:	Previous abnormality glucose tolerance
WHO	:	World Health Organization

INTRODUCTION & AIM OF THE WORK

INTRODUCTION

AND AIM OF THE WORK

Diabetes mellitus is a universal health problem affecting human societies at all stages of development.The personal and public health problem of it,already of vast proportions,continues to grow despite of exciting advances in the past few years in virtually every field of its research and in patient care such as improved treatment,protection against complications,increased self-care,and even primary prevention of some forms of diabetes(WHO, 1985).

At least,30 million people are involved throughout the world, and the number of cases reported increase rapidly with aging of the populations,changing in life style and improvement in ascertainment(WHO,1980).

The maintenance of normoglycemia in early diabetes often improves beta-cell function and the earlier detection could reduce the early onset of complications.These two well known facts justify every effort for screening of diabetes among high risk subjects.

Epidemiological studies related to diabetes mellitus are playing an increasingly important role.These studies on insulin-dependent diabetes mellitus(IDDM) may throw light on possible environmental and genetic factors in its etiology and pathogenesis (Joner and Sovik,1981).A major step towards the prevention of IDDM, is the ability to identify people who are genetically susceptibile to the disease and the possible triggering factors which might help

in manifesting the disease clinically in them.

Many studies all over the world specially in developed countries have been conducted concerning the incidence, prevalence and other epidemiologic features of IDDM, but such informations are inadequate in many developing nations(WHO,1980)

In Egypt, a number of studies had been performed concerning some epidemiologic features of IDDM among Egyptian children in different localities, for certain age groups, using somewhat different screening methods and reporting different results(Gabr and Abdel Salam,1962;EL Garhy,1967; EL Taweel,1981; EL Bayadi,1983), but more studies are still required for better evaluation of the extent of the disease in our country.

The main goal of this work was to determine the prevalence rate and other epidemiologic features of IDDM among Egyptian primary school children in an area not studied before (Heliopolis district),since precise statistics as to its prevalence rate is not definitely available.

REVIEW OF LITERATURE

Diabetes Mellitus :

DEFINITION:

Diabetes mellitus is a disease syndrome best characterized as a state of chronic hyperglycemia of various etiologies(Wellborn, 1984).This is sometimes accompanied by symptoms of severe thirst, profuse urination,weight loss,and stupor cumulating in coma and death in the absence of effective treatment.More often,presenting symptoms are much less severe without disturbance of consciousness, occasionally symptoms are totally absent(WHO,1985).

D.M. is considered a complex syndrome(s) characterized by:

1. Hyperglycemia,secondary to deranged secretion and/or action of insulin;
2. Specific microvascular complications,including thickening of capillary basement membranes,retinopathy and nephropathy;
3. Macrovascular disease,i.e.,accelerated atherosclerosis;and
4. A variety of other complications:neuropathy,complicated pregnancy,and increased tendency to infection.

D.M. is the most common endocrine / metabolic disorder of childhood that has important consequences on physical and emotional development(Sperling, 1983)

CLASSIFICATION:

In the past,differences were noted between forms of diabetes secondary to other well-known disorders,mainly endocrinopathies, and forms that have no clear correlation with other diseases and for this reason are called primary or idiopathic diabetes.Within the latter forms of diabetes there are clinical differences in the onset and evolution of the disease that have been more clearly assessed. More recently studies on the families of diabetic patients, studies of identical twins, the evaluation of autoimmune phenomena, the study of cell mediated immunity and the genetic findings have clearly separated at least two substantially different forms within primary diabetes.These two forms in the past were divided according to the age of onset of the disease.The criterion of the age of onset,however,is not now considered satisfactory.

In the last few years, different classifications of diabetes have been reported(Bottazzo and Doniach,1976; Cudworth and Woodrow, 1976; and Irvine,1977).A major problem at present is that no classification is satisfactory for both the clinician and the researcher.

In 1979, the National Diabetes Data Group(NDDG) developed, together with the main Assoiation for the study of diabetes,a new classification of the disease.The aim was to give the diabetologists a uniform framework in which to conduct clinical and epidemiological research or follow therapeutic guidelines.This classification had been provisionally endorsed by WHO(1980).

However, in 1985, the WHO revised this classification and added another category named Malnutrition Related Diabetes Mellitus (MRDM), to the well-known NDDG classification.

The modified classification presented by WHO(1985) is shown in Table (1).It is noteworthy that this classification includes some non-diabetic categories such as impaired glucose tolerance (IGT)and statistical risk classes.It is to be noted also,that the designations Type 1 and Type 2 have not been included to avoid confusion over the use of the terms IDDM and NIDDM, and Type 1 D.M. and Type 2 D.M. It has to be clear that IDDM and NIDDM are clinically descriptive subclasses; while Type 1 and Type 2 D.M. (terms given as alternatives to IDDM and NIDDM, respectively, in the earlier classifications) represent different pathogenic mechanisms and their use implies the demonstration of certain immunological phenomena and genetic markers using methods that are rarely available and that lack standardization.However, since Type 1 and Type 2 are widely used at present,it is recommended that,again to avoid confusion,they should be regarded as completely synonymous with IDDM and NIDDM respectively (i.e.,carrying no etiopathogenic implications).

However, classifing diabetes according to insulin dependence may be misleading because there are many non-insulin-dependent subjects that are treated with insulin for various reasons. Furthermore, among the non-insulin-dependent diabetics there is a small group that within a few months or years of diagnosis develop a clear insulin dependence. To overcome these and other limits the NDDG, (1979), proposed a parallel classification for research purposes.