

Emotional and Behavioural Disorders in the Egyptian Juvenile Diabetics

By Z. Bishry, M. Salem and H. Shatla

ABSTRACT

The studied material comprised of 16 diabetic boys and 9 diabetic girls, between the age of 5 – 15 years. The parents and the children were interviewed; behavioural scale for teachers was completed and behavioural assessment was studied. Psychological factors in the families as well as psychological precipitating factors were more evident in the diabetics than in the controls. Conduct and neurotic disorders were common. Psychiatric disorders were not frequent in diabetics with positive family history. No relation between the duration of illness and psychiatric problems was found. Psychiatric problems were more common in children whose diabetes was poorly controlled or in those more prone to diabetic complications. Significant lower I.Q. scores than the controls were evident in diabetics who had history of diabetes before the age of five years. Any serious attempt at achieving diabetic control should also consider the social circumstances and the emotional climate of the family, as well as the insulin and dietary regimens.

INTRODUCTION

Diabetes mellitus is a biochemico-clinical syndrome characterized by hyperglycaemia, glucosuria and disordered lipid and protein metabolism.

..... Since diabetes mellitus is a common health problem which incapacitates a large sector of most populations, it becomes imperative to study this syndrome from all aspects. Children were found to be the age

category which is likely to suffer from and manifest most of the incapacitating complications of diabetes the latter being time dependent.

Juvenile diabetics are defined as patients in whom the onset of the disease starts before the age of 15 years (Duncan, 1961). Although juvenile diabetes occurs less frequently than mature onset diabetes, it is the most common disorder of carbohydrate metabolism in children (Litman, 1974). Diabetes seems to be more common in patients with Down's syndrome and other forms of mental deficiency (Rimoin and Rotter, 1981).

Fortunately, much is known now about the aetiology, pathophysiology, treatment and organic complications of diabetes, (Sonkeen and West, 1978) and more attention is being paid to the effects of the illness upon the diabetics' social, domestic and working life (Knibbs and Jackson, 1975). Nevertheless little consideration is given still to behavioural aspects of the management of diabetes mellitus (Watts, 1979), especially when the affected patient has a concurrent psychiatric disorder or intellectual deficit. In general the glucose tolerance test has been found to indicate a higher degree of diabetes when the individual is feeling hostile and depressed (Okasha, 1977).

Recently from genetics and immunology, there are at least six aetiological types of diabetes (Keen and Janett, 1978). Juvenile diabetes is considered as a chronic disease with expectations of serious complications during the life history of the patient. Psychiatric disorders are expected as a complication, these may be due to biological, social, educational or mere associations. Some paediatric clinics have a child psychiatrist as a part of the team (Gath et al., 1980).

The aim of this study was to assess the emotional and intellectual status of a group of diabetic children and to assess how these findings can be correlated with their diabetic condition.

MATERIAL AND METHODS

The studied material comprised of twenty five diabetic children attending the diabetic clinic at Ain Shams University hospitals and the pediatric clinic at Heliopolis hospital. The subjects studied were 16 boys and 9 girls. Their ages ranged from 5 – 15 years.

Clinical assessment of diabetic control was made by the paediatrician's visit by getting a proper history including symptoms suggestive of hyperglycemia as polyuria and polydipsia, polyphagia, nocturnal enuresis or loss of weight. Also symptoms of hypoglycemia as abdominal pain, vomiting especially after insulin were asked about. History of hospital admission to treat a diabetic or hypoglycemic coma was asked. Symptoms suggestive of complications as numbness and visual disturbances were studied. Full clinical examination of the patient including weight and height and different body systems was also done.

Routine examination of urine for sugar, acetone, albumin was done at each visit and if necessary fasting bl. sugar was done.

Patients were checked every 2 weeks for a period of one year. The parents were interviewed by the psychiatrist after the child had seen the paediatrician. Each school was asked to complete a questionnaire about the child's attitude and attainments at school and the Rutter B behavioral scale for teachers was completed (Rutter, 1967; Rutter et al., 1970). The school was asked to complete the questionnaire for anonymous control child who was the next child of the same sex in the same class.

Behavioral assessments were carefully studied during the last year using different parameters scholastic achievement, social relation with peer group, behavioral changes.

In this study psychiatric disorder was taken to mean an abnormality of behavior, emotions or relationships sufficiently marked or sufficiently prolonged to cause handicaps to the child himself and/or

Recurrent attacks of diabetic ketosis happened in two cases as self induced by the patients due to deliberate omission of insulin i.e. as a result of irresponsible behavior. They needed psychiatric help for this behaviour.

Applying Stanford Binet test for the children, those who had history of diabetes before the age of five years (8 cases) achieved statistically significant lower I.Q. scores (average 92) than the healthy controls (average I.Q. 106). There were no significant difference between the two groups when diabetes was first diagnosed after the age of five years (average I.Q. 105).

The average for fasting bl. sugar was 340 mg / , sugar in urine ranged between ++, +++ on examination for the first time. The impact of Juvenile diabetes mellitus on growth as regards height and weight was not severe when adequate nutrition and treatment were ensured. One female patient who was 15 years old and had not reached menarche used to refuse regular therapy. She had recurrent attacks of diabetic ketosis. She needed frequent admission to control her diabetes.

DISCUSSION

Diabetes is a common disease among the population and its diagnosis has major implication for the patient functioning in his physical, psychological and social terms. Diabetes in a child produces emotional stress, both to the child and his family, which is potentially serious during the period of maturation of the child. In addition to the stress resulting from diabetes, more than half of the cases (64 %) were under stress from pre-existing adverse psychosocial circumstances. Some children were regarded as deviant only at school, while others only at home and a proportion in both places. The mechanism of action of psychological factors on predisposed diabetics, that emotional stress produces metabolic changes in the patients (Baker et al., 1970), can intensify the problem of metabolic instability. The disease itself

Behavioural deviancy at school :

The schools completed the Rutter B₂ forms on 18 (12 boys & 6 girls) out of the 25 diabetic children. Seven boys were rated deviant by the teachers with a score of at least seven on the B₂ scales. The seven boys had predominantly neurotic symptoms. One had also conduct disorder (mixed type). Three girls were rated deviant, two had neurotic disorder and one had conduct disorder. Other cases could not be rated because they did not attend the school or because they left the school after the discovery of the illness. A significantly fewer number of the control children were recorded as deviant (three boys and two girls) by the school.

Duration of the illness :

Eighteen percent of the children had diabetes for at least four years, forty-eight percent had diabetes between two and four year assessment.

There was no relationship between duration of illness and psychiatric disorders. Psychiatric disorders were not more frequent in diabetics with positive family history for diabetes than those with negative family history.

On the contrary, psychiatric problems were more common in children whose diabetes was poorly controlled or in those more prone to diabetic complications.

Adverse psychosocial factors in the family background were found to be associated with less good control of diabetes as judged by the paediatrician at the clinic (Table III).

The most evident behavioral changes in diabetic children were asthenia, hesitancy, hypochondriasis, irritability, frequent mood swings and out-bursts of anxiety, vagueness about emotional feelings, and alterations in behaviour ranging between over-demanding dependency and explosive rebellion.

Low I.Q. scores in our diabetic children were found more common in the younger age group who started their illness before the age of five years with a mean I.Q. of 92 (8 cases) compared to the elder group with a mean I.Q. of 105 and the control group with a mean I.Q. of 106. These results agree with Ack et al (1961). This could be explained by early age of onset and the possibility of more complication of the physical insult on immature brain during the critical period of its development. The importance of psychological and social deprivation as a result of this illness could not be ignored. Again special complications like hypoglycaemia and the resulting diminished arousal and convulsions could be an important factor. The effects of a chronic illness upon early intellectual development were held to account for the results. Brierley (1976) in experimental neuropathological study had shown that hypoglycaemia can cause lesions in the brain similar to these which are caused by hypoxic insults. Microscopic lesions can be found in the cerebral cortex and the hippocampi are nearly always involved in a typical hypoxic necrosis. Laboratory work indicates that increased blood viscosity (Barnes et al., 1971) and abnormal cerebral vessel reactivity (Dandora et al., 1978) may interfere with the regulation of cerebral blood flow in diabetics. These abnormalities may be responsible for fluctuations in the patient's mental state together with the changes in the blood sugar level. All these factors could account for the appearance of fluctuating psychiatric symptoms like irritability, disobedience, aggression and could result in educational backwardness as a result of interrupted attendance or inability to sustain concentration in lessons, so scholastic retardation will occur.

It is generally agreed that good diabetic control protects against the long term microvascular complications of diabetes (Cabill et al., 1976). As it is recognised that emotional stress can directly affect metabolic stability in diabetic patients. Any serious attempt at achieving diabetic control should also consider the social circumstances and emotional climate of the family as well as the insulin and dietary regimens.

can frustrate the child by depriving him of his normal activity, or it can set him apart from other children producing timid withdrawal or overt aggression according to his premonitory temperament. The whole family of a diabetic child is affected to some degree by the emotional consequences of the disease (Minnichins et al., 1975).

Precipitating emotional factors were evident in 52 % of cases. Indeed, Stein and Charles (1971) reported significantly more parental absence and disturbance in the families of teen age diabetics than in those of matched control group of non-diabetics but clinically ill adolescents, 77 % of their 38 diabetic cases and 19 % of the controls had lost a parent before the onset of diabetes mellitus. This can be explained by the acute psychological stress of loss of a parent that precipitated diabetes in genetically predisposed individuals.

Among the characteristic behavioural changes noticed in our study as collected from psychiatric interview, family review, Rutter teacher questionnaire were irritability, frequent mood swings, withdrawal, hypochondriasis, indecision especially in elder age group above nine years of age. Other alterations in behaviour ranging between over demanding dependency and explosive rebellion were the characteristics of the younger age group below the age of nine years.

Roch and Molnar (1974), used the Minnesota Multiphasic Personality Inventory and failed to define a consistent personality profile in diabetics.

As regards those cases with recurrent attacks of diabetic ketoacidosis after emotional arousal, Baker and Bareai (1970) claimed to have identified a small subgroup of female juveniles with superlabile diabetes that led easily to recurrent episodes of diabetic ketoacidosis, through the mediation of an augmented ketone response to their endogenous catecholamine. Beta adrenergic blocking drugs were found to inhibit the process and they may prove to be an acceptable treatment for the disorder. ,

TABLE IV
Psychiatric Problems in Diabetics and Controls

	Neurotic Disorders	Conduct Disorders
Diabetics	5: F.	2 F.
	6: M.	4 M.
Controls	2 F.	2 M.

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In the movement to link psychiatry more closely to general medicine, diabetes mellitus may be a useful model for co-operation between psychiatrists and physicians.

TABLE I
Psychosocial Factors in Families of Diabetic Children and Controls.

Psychosocial Factors	Diabetics	Controls
Mental disturbance in family member.	1	—
Discordant family relationships.	4	2
Lack of warmth.	3	1
Parental over-involvement	2	1
Inadequate or inconsistent care	2	1
Single parent family	4	—

TABLE II
Emotional Precipitating Factors Six Months before the Illness.

Emotional Precipitating Factors	No. of Patients
Loss of parent.	3
Change of school	3
Mental disturbance of a family member	1
Academic failure	2
Divorce	1

TABLE III
**Behavioural and Emotional Problems in Diabetics
and Clinical Assessment of Diabetic Control.**

	Poor Control	Fair Control	Good Control
Problem at school or at home	7	8	2
No psychiatric problems	—	2	6

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الموجز

اضطرابات الوجدان والسلوك عند الأطفال المصابين بمرض البول السكري

قام الباحثون بدراسة الاضطرابات الوجدانية والسلوكية لدى ١٦ ذكرا و ٩ أنثى من الأطفال فيما بين سن الخامسة والخامسة عشر من المصابين بمرض البول السكري ، وقد استعمل الباحثون بعض الاختبارات النفسية مع مراجعة أولياء الأمور ، كما استعملوا مجموعة ضابطة . وقد وجدوا بعض الاختلاف في السلوك وفي الوجدان وفي التاريخ النفسي للمرضى البول السكري بالقياس للمجموعة الضابطة .

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ABSTRAIT

Les troubles émotionnels et comportementaux chez des diabétiques juvéniles Egyptiens

Le matériel étudié comprenait 16 garçons et 9 filles diabétiques entre l'âge de 5 et 15 ans : les parents et les patients ont été entretenus : des échelles pour l'évaluation de leur comportement ont été complétées par leurs professeurs et des mesures de comportement ont été étudiées. Les facteurs psychologiques dans les familles ainsi que les facteurs psychologiques précipitants étaient plus évidents chez les diabétiques que le groupe contrôle. Les troubles comportementaux et névrotiques ont été communs. Les troubles psychiatriques n'étaient pas fréquents chez les patients montrant une historique de famille positive. Il n'y a pas eu de relation entre la maladie et les problèmes psychiatriques. Ces derniers étaient plus communs chez les enfants où le diabète était pauvrement contrôlé et chez les enfants qui étaient susceptibles aux complications du diabète. Les quotients d'intelligence étaient bas d'une manière significative chez les diabétiques qui ont été atteints de la maladie avant l'âge de cinq ans que le groupe contrôle. N'importe quel sérieux essai de contrôler le diabète doit considérer les circonstances sociales et le climat émotionnel de la famille ainsi que l'insuline et la diète.