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ZINC METABOLISM IN SOME BEHAVIORAL DISORDERS IN EGYPTIAN CHILDREN.

Thesis Submitted For Fulfilment of Ph.D. Degree
(Childhood Medical Department)

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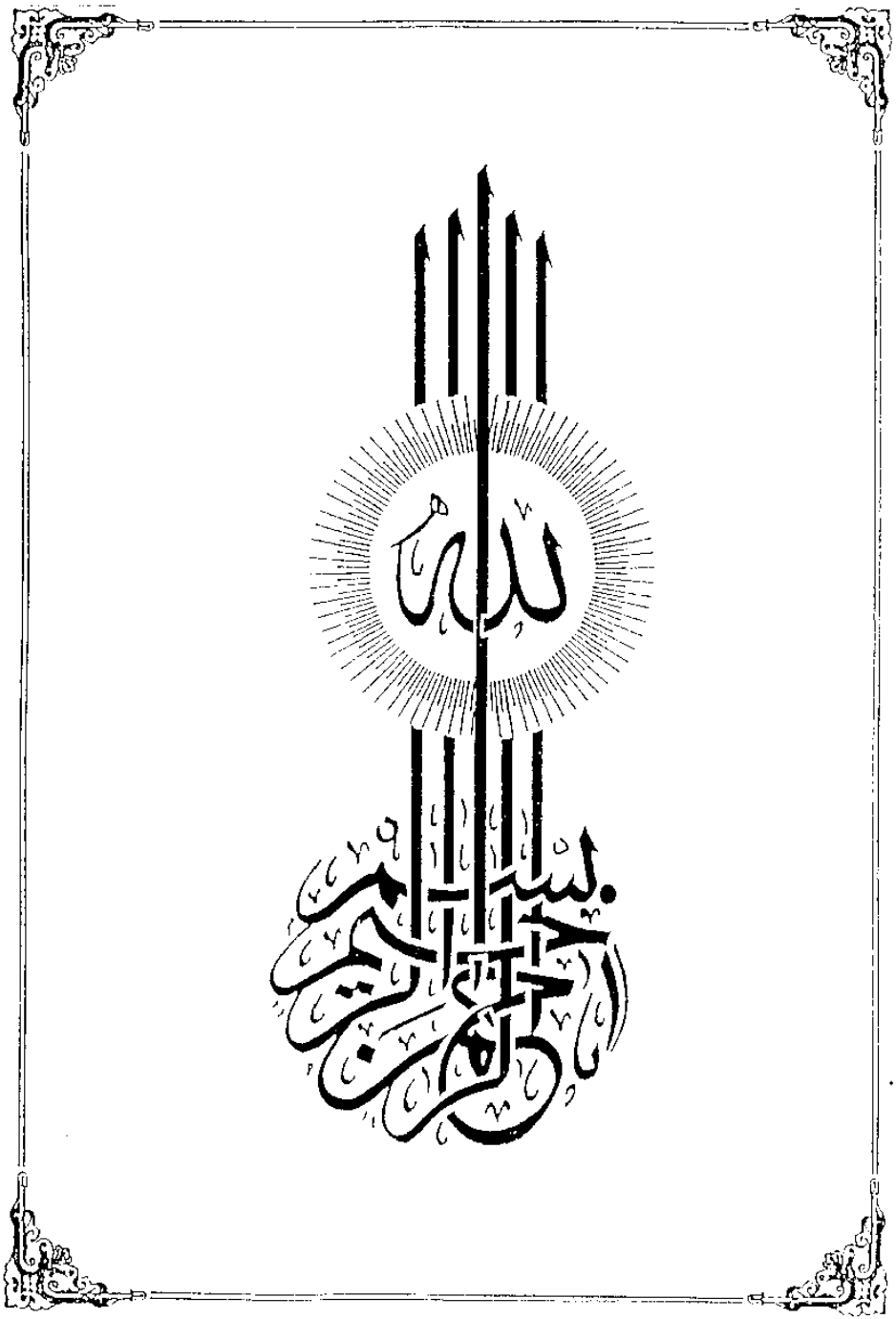

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Trace elements are those elements present in a very small amounts in the living tissues. Some of these elements are essential for proper function of various organs, as they enter in the structure of many enzymes, vitamins and hormones. Deficiency or excess of one or more of these elements will result in different syndromes which are associated with structural, functional, biochemical, physiological and psychological abnormalities (Jacob, 1987 and Burch, 1975).

Zinc is an example of these essential trace elements which attracted our attention.

The importance of zinc as related to behavior has not been studied extensively. Data from behavioral studies using animal models had revealed pooren learning, more aggression and less exploration in animals experiencing zinc deficiencies at various times during the life span (Chevers, 1978).

Psychiatric manifestations can occur in deficiency states of these essential trace elements, of which zinc deficiency has received the closest attention.

The aim of this work is to study serum zinc in children suffering from hyperkinetic syndrome and those suffering from common nutritional deficiencies presenting with some abnormal behavioral symptoms (Protein calorie malnutrition and iron deficiency anemia) comparing their zinc levels with a group of normal control children.

This aiming to asses any changes in zinc metabolism and trying to correlate it with the abnormal behavioral symptoms presented in these diseases.

REVIEW OF LITERATURE

NORMAL AND ABNORMAL BEHAVIOR DEVELOPMENT

Children are continously in the process of change. As their bodies mature, their behavior evolves and they display more advanced intellectual and social skills. Unfortunately, the course of human devlopment is never smooth, and almost all children encounter problems from time to time. Because of this, it is not easy to determine whether a particular child's problem is a typical one or whether it is serious, requires professional attention. The variabilily of the child behaviour adds to the difficulty of diagnosis.

It appears that some problems are to be expected during childhood and may constitute a normal part of growing up. Nearly every child shows some mixture of appropriate and inappropriate behavior, and most problems are transitory rather than long-lasting.

Criteria for Normality:

Age Appropriatenss:

The age and developmental status of the child are of aparamount importance in determining the normality of the child's behavior. The development of specific fears and the constant demanding of adult attention, although bother some, would not be considered atypical

for a 4 yearold, but would be rare and notable in a 13-year-old. So, in order to determine whether a particular youngster's reactions are normal or not, we must know how children of various ages typically behave (Gelfand et al., 1982).

Preschool Period:

.During the toddler period at one and one-half to two years of age, children frequently display temper tantrums and contrariness (Rolf et al., 1976). Kindergartenaged children emerge new problems at this age, lying is displayed by one third to one half of 5 year-olds; boys in particular are characterised as having overabundence of energy, some may begin to demonstrate over senstiveness to minor slights, excessive reserve, and specific fears (Macfarlane et al., 1954).

Elementary School Period:

During the early school years temper tantrums, lying and over-sensitivity are typical problems. Overactivity peaks at seven or eight years of age and declines there after (Rolf et al., 1976). Many children show at least fleeting behavior (Rubin & Balow, 1978) and academic achievement problems are common (Werner et al., 1971).

Ideal or Optimal Adjastment:

A behavioral reaction would be considered abnormal if it caused distress to the child, his family and other people regardless of how many children of the same age exhibited similar reactions. Coleman and others (1980), suggested classifying behavior as abnormal if it interferes with the well-being of the individual or group well-being reffers to physical and psychological growth and fulfillment.

Instensity:

Behavior that is so intense as to disrupt everday routines seriously or to injure oneself or others definitely qualifies as deviant.

Problem Persistence:

Very transitory problems often are not considered to constitute behavior disorders, but when the ! havioral disturbances persist for periods of several months or years, the child's reaction is no longer within the normal range.

Sex-Role Expectation:

Boys are expected to behave more aggressivly than girls. Consequently, girls who are physically aggressive

are more likely to be viewed as seriously disturbed than are boys who exhibit similar behavior. Boys who show feminine interests are often ridiculed and shunned by other boys (Roos, 1980).

Incidence of Behavior Disorders:

Hammouda (1984), in an epidemiological study of conduct disorders in primary school children in Egypt reported that the prevalence rate was 6.35% and conduct disorder was more common in boys than girls with a ratio (3:1). The prevalence rate in urban school children was higher (7.46%) than that of rural children (3.94%). From teacher's observation the prevalence rate of the associated symtoms were as following: Hyperactivity (81.48%), impulsiveness (74.07%) and attention deficit (70.37%) while parents's observation showed that hyperactivity only presented 48.14%.

CLASSIFICATION SYSTEMS OF CHILDHOOD BEHAVIOR DISORDERS

Medical Classification:

Multiaxial systems and the diagnostic and statistical manuals (DSM):

The world health organization WHO system for child behavior disorder provides more than a single diagmostic label and adds a set of dimension (axes) which are coded along with the psychiatric diagnosis. Each axis add more information of factors e.g.

Axis #1 clicial psychiatric syndrome

2.1 hyperkinetic disorder

Axis #2 intellecual level

1 Mild retardation

Axis #3 Biological factors

3.5 primary nutritional deficiency

7.0 speech and language disorders

Axis #4 psychosocial iufleunces

4 social or material deprivation (poverty)

3 Deficiency of parental control.

This multiaxial diagnosis describes a hyperkinetic child who is slow intellecually, has a lauguage delay, is poorly nourished and lives in poverty with little parental supervision (Rutter et al., 1975).

Psychoanalytic Classification:

The psychoanalytic approach has emphasized emotional orises during sensitive periods of development as a major cause of behavioral disturbances, rather than a disease or purely organic cause (Sarason and Ganzer, 1968).

In the psychoanalytic approach, the underlying causes are viewed primarily as emotional. For example, behavioral distubances are thought to be caused by repressed sexual impluses developmental crises of growth and social maturation and needs for power (Adler, 1927).

Most personality disorders apear to involve strong fixation in psychosexual and psychosocial development in infancy and early childhood level, related to original conflicts over handling of dependent wishes, strivings for autonomy, the handling of aggressive impulses and sexual differentiation (Group for the Advancement of Psychiatry GAP, 1974).

Behavioral Classification:

According to the behavioral view, "the symptom is the disorder rather than merely its external, visible manifestation" (Draguns and Phillips, 1971). What is important to the behaviorist is how the abnormal behavior is maintained by the environment, the antecedents set

the occasion for the response and the consequence acts to increase (or decrease) the occurence of the response. This behavioral classification system has been called the "A, B, C" system (A = antecedent, B = behaviour and C = consequence).

Educational Classification:

Common categories in educational classification system include mental retardation, learning disabilities, communication disorders, physical handicaps, and behavioral handicaps (emotional disturbances).