

PROTEIN BOUND IODINE LEVEL IN CHILDREN WITH OBESITY

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In the opinion of Mayer, the etiopathogenetic factors contributing to the occurrence of obesity may be divided into several groups: constitutional (genetic), environmental, hypothalamic (adiposogenital dystrophia), various affections of the central nervous system, endocrine factors and the like.

Until recently, the concept has prevailed in medicine that weight gain is conditioned mainly by disorders in the endocrine glands, first and foremost, in the thyroid and hypophysis.

Actually, the thyroid is very often put forward as the cause for obesity. However, in myxedema an average increase of 5% in body weight results. Among large numbers of myxedematous patients in the USA, obesity has been recorded in 40% merely. This is surprising, since basal metabolism supplies the main part of calories utilized daily. Provided it is lowered with about 10%, the organism saves about 200 calories per day. Parallel to the lowering of basal metabolism in hypothyroidism, appetite is also diminished. Thus, the regulating mechanisms prevent the appearance of obesity.

The influence exerted by the thyroid on the regulation of fatty exchange, in terms of catabolic process, is quite strong. Thyroxine, within the frames of total combustion, raises substantially the rate of fats' utilization also. The low respiratory quotient values in hyperthyroidism are in support of the latter fact. Contrarily, upon removal of the thyroid and in myxedema, the blood content of fats during fatty loading shows a stronger increase and slow return to normal level. The body is rich in fats, the respiratory quotient reaches a higher level and the specific-dynamic action of the food received is rather restricted.

The clinical observation on patients with obesity reveals a slight reduction of radioactive iodine uptake. Prosyakov and Nestorova recorded the latter fact in 86% of the patients with obesity, while Tzanev — in 50 per cent. Such slight deviations demonstrate that in obesity there exists a certain inhibition of the functional state of the thyroid. Along with that, characteristic pathological variations on behalf of the other paraclinical indices are not established, and clinical symptoms for hypothyroidism neither.

Unlike the concepts just referred to, Wolkins definitely accepts that insufficiency of the thyroid and hypophysis could by no means be considered as a cause of obesity.

With a view to the controversial statements concerning the role of thyroid in the pathogenesis of obesity, we undertook the task to study the functional state of the thyroid gland in children with obesity.

On the ground of research into the widespreading and character of obesity in the school age, comprising 2774 school children, 7—14 years old, we found a total percentage of obesity amounting to 4.1 per cent. Upon comparison of the incidence of obesity between girls — 5,6% and boys — 2.8%, statistically reliable differences were obtained.

Table 1 shows the distribution of the children investigated by sex and age.

Table 1

Age groups	Number of children investigated	% of children with obesity	d	p=0,05
7—9 y.	839	2.5		
10—12 y.	1229	5.2	2.7	1.68
13—14 y.	706	3.8	1.4	1.91

Table 2

Sex	Number of children investigated	% of children with obesity	d	p=0,05
Girls	592	7.4		
Boys	637	3.2	4.2	2.5

Table 2 illustrates the interdependence between the percentage of overweight children, aged 10—13, and sex.

In some of the children with obesity (concerning the heaviest cases), we studied the level of protein bound iodine (PBI), which is an indicator considered as a precision criterium for the functional state of the thyroid.

A series of 32 children, 14 girls and 18 boys, were subjected to investigation. Nine were up to 10 years old and 23 — from 10 to 14. Such a distribution is in compliance with the higher percentage of obesity among the children in the age group 10—14 years, i. e. in the period of prepuberty and puberty.

A variation from the normal PBI level (4—8%) was found in seven children, accordingly, in three with lower values (3.0%, 3.1% and 3.5%), and in four with higher values (8.2%, 9.6%, 10 and 10.2%).

The distribution of the protein bound iodine values in percentuals is the following: normal values — 78.2%, higher values — 12.5% and lower values — 9.3 percent.

The clinical study on children with obesity showing a variation from the normal PBI level, does not provide evidence of functional disturbance at thyroid level: neither hypo-, nor hyperfunction. In the small number of children with obesity in whom variations from the normal PBI level were recorded, a certain correlation with age was also established. They concern-

ed mainly children in the period of puberty, in whom also higher 17-ketosteroid values and moderately increased blood pressure were discovered. If it is accepted that in these cases the so-called «basophilism until sexual maturation» is concerned (Yules and Hollo), certain influence exerted by the hypophysis upon the thyroid gland by way of thyrotropic stimulation is by no means to ruled out.

Inferences

The preliminary studies performed warrant the assumption that the thyroid plays no essential role in the pathogenesis of exogenous-constitutional obesity in childhood.

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УРОВЕНЬ БЕЛКОВСВЯЗАННОГО ЙОДА У ДЕТЕЙ С ОЖИРЕНИЕМ

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РЕЗЮМЕ

Авторы исследовали уровень белковсвязанного йода (БСЙ) и холестерина у 32 детей с ожирением. У небольшого процента (12,5%) были обнаружены более высокие величины БСЙ и у 9,3% — более низкие. Это позволяет на основании этих предварительных исследований принять, что щитовидная железа не играет ведущей роли в патогенезе неэкзогенно-конституционального ожирения.