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INFLUENCE OF IRON DEFICIENCY AND PHYSICAL DEVELOPMENT ON TEENAGE GIRLS

Summary. Factors of the physical development young girls are described in a work at age 12-14 years with different level of the deficit ferric. It Is done conclusion that at period LDZH, speed growing exists beside of children lengthwise, long hands and long legs, which promote quick transition to reinforcement of the gain mass bodies that brings about more early sexual to maturation.

Keywords: young girls (teenager), deficit ferric, physical development.

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ВЛИЯНИЕ ДЕФИЦИТА ЖЕЛЕЗА И ФИЗИЧЕСКОГО РАЗВИТИЯ НА ДЕВОЧЕК-ПОДРОСТКОВ

Резюме. В работе описываются показатели физического развития девочек в возрасте 12-14 лет с различными уровнями дефицита железа.

Делается вывод, что в период ЛДЖ, у детей наблюдается ускоренный рост в длину, длинорукость и длинноногость, которые способствуют быстрому переходу к усилению прибавки масса тела, что приводит к более раннему половому созреванию.

Ключевые слова: девочки-подростки, дефицит железа, физическое развитие.

Relevance. The urgency of this problem is determined not only by its wide spread, but also in connection with the development of polysystemic disorders, dystrophy of internal organs, which is highly associated with low physical and mental capacity of adults and children.

The variety of anemia, the ease of its occurrence and the severity of its course among high-risk groups, which include adolescent children, makes it necessary to periodically update data on the study of the frequency and patterns of IDA development, depending on the geographical, social and living conditions, age-sex nature, the rate of physical and sexual development of adolescent children.

Purpose of the study. To study the influence of growth factors on the development of IDA in adolescent girls aged 12-14 years.

Material and research methods. We examined 126 girls aged 12-14 years with various manifestations of ID - LVD (45), IDA I (56) and (25) degrees. The reference group consisted of 51 girls of the same age. Healthy and sick children (LHD, IDA) were selected by random numbers (Bradford table) from the general population of schoolchildren when conducting an epidemiological study to study HD among students.

The main criteria for assessing the diagnosis of IDA in schoolgirls were a low level of serum iron ($\leq 18 \mu\text{mol} / \text{L}$), high total (TIBC) ($\geq 60 \mu\text{mol} / \text{L}$) and latent (LVCC) ($\geq 40 \mu\text{mol} / \text{L}$) iron-binding capacity of blood serum, low coefficient ($\leq 30\%$) of transferrin saturation with iron (CST%), Hb level ($\leq 120 \text{ g} / \text{l}$), erythrocyte count ($\leq 3.75 \times 10^{12}$), Ht ($\leq 0.36 \text{ l} / \text{l}$), content ($\leq 27 \text{ ng}$ or ≤ 1.68

fmol) and concentration in more than one erythrocyte ($\leq 31\%$ or $\leq 19.2 \text{ mmol / l}$), low volume of one erythrocyte ($\leq 75 \mu\text{m}^3$ or fl).

When assessing the state of LVH, we focused on a decrease in the level of serum iron ($\leq 1812 \mu\text{mol / l}$), Hb ($\leq 120 \text{ g / l}$), erythrocytes ($4.25\text{-}3.75 \times 10^{12} / \text{l}$), a decrease in the level of ferritin (Fe) in the blood ($\leq 40 \text{ ng / ml}$), a tendency towards an increase in the transferrin content ($\geq 3.3 \text{ g / L}$), an increase in the transferrin / ferritin index ($\geq 0.1 \text{ conv}$). In determining the severity of IDA in the examined girls, the principles of standardization and unification of laboratory methods for the study of ID were observed.

Research results and their discussion. In girls aged 12-14 years, with the development of LJ, compared with the control group, there is an increase in body length ($P < 0.05$), arms ($P < 0.05$) and legs ($P < 0.05$), and also the relative surface of the body (OPT, $P < 0.001$). At the same time, we have identified a phenomenon - an increase in the OPT of girls at the stage of LH, which corresponds to the well-known surface law, according to which the intensity of energy metabolism of homeothermal organisms proportionally increases as their relative body surface increases. We identified the morphometric situation in girls with LVH, characterized by intense growth in length and combined with long-handed and long-legged, confirms the above physiological regularity, with the only difference that these shifts occur at an earlier date (12-14 years), and not in the period the most intensive growth (15-17 years), that is, during the second puberty jump.

In the surveyed girls with grade I IDA, along with high values of body length, arms, legs, compared with the control group, body weight ($P < 0.05$), head circumference ($P < 0.01$), APT ($P < 0.01$), and OPT decreased compared to girls with LVH ($P < 0.001$).

With I degree of IDA severity in girls, the studied indicators of anthropometry, compared with their counterparts in the control group, and LJA are significantly increased ($P < 0.001$), however, their differences when comparing I and II degrees of IDA become insignificant ($P > 0.05$), except for body weight ($P < 0.05$), chest circumference ($P < 0.01$) and APT ($P < 0.05$). These data indicate that

increased body weight and an indirect increase in APT is an increase in a compensatory morphometric response to preserve iron stores, which decreases with their increased growth in length.

These factors in girls with grade II IDA may be the primary reasons for the realization of the maximum possible height in length (low growth in adulthood), due to the shortening of the period of puberty spurt (jump), lead to an earlier increased growth in width, i.e. body weight (their mass, breast circumference and APT are increased), which apparently contributes to early maturation. These data require a more in-depth study of the parameters of the physical and sexual development of girls aged 12-14 years, in relation to the severity of ID.

Conclusion. Thus, in prepubertal adolescent girls with mild IDA, there is an early and increased increase in the length of the body, arms and legs. With an average severity of IDA, a morphometric pattern is observed, determined by a decrease in the rate of growth in length and an increased increase in body weight, which contributes to earlier puberty.

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