

GENDER HORMONES AND NON-SPECIFIC BRONCHIAL HYPERSENSITIVITY IN CHILDREN WITH BRONCHIAL ASTHMA

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Introduction. Bronchial asthma continues to occupy a leading place in the structure of chronic respiratory diseases in adults and children [1, 2, 3, 4]. Therefore, bronchial asthma remains an actual scientific problem today.

One of the main links in the pathogenesis of bronchial asthma is bronchial hyperreactivity (non-specific bronchial hypersensitivity) [5, 6]. On the other hand, among the etiological and pathogenetic factors of the development of bronchial asthma, a certain role belongs to violations of the neuroendocrine regulation of the body, which is performed by the hypothalamic-pituitary-adrenal system. The hormonal defense mechanism of the body is triggered due to a state of stress reaction, which causes increased activity of the pituitary gland, which in turn activates the adrenal cortex. The main hormones of the adenohypophysis play a key role in the process of physiological maturation of the body and the establishment of reproductive function [7]. The endocrine status of children and adolescents is characterized by the immaturity of the "hypothalamus - pituitary gland - gonads and target organs" system [8]. In such conditions, the negative impact of exo- and endogenous factors during the formation of the reproductive system can cause its functional immaturity. It is a well-known fact that sex hormones are included in the mechanisms of adaptation reactions.

It is from the age of 12 that there is a significant restructuring of the functional activity of the pituitary-adrenal-gonadal status and a qualitative change in the hypothalamic-pituitary-gonadal relationship in the system of negative and positive feedback.

The purpose of the study: to study the relationship between puberty and the state of non-specific bronchial sensitivity in children suffering from bronchial asthma.

Materials and methods: Measurements of the basal levels of non-specific sensitivity of the respiratory tract were carried out in 51 children aged 6.5-15 years with bronchial asthma in the remission stage during the test. Children were divided by gender and depending on age into two groups: the first, children from 6.5 to 11 years old, clinically corresponding to the phase of prepuberty, the second - children from 12 to 15 years old, clinically puberty.

Assessment of non-specific bronchial sensitivity was carried out using inhalation bronchoprovocation tests with acetylcholine [9, 10]. The state of sexual development was determined taking into account the clinical picture and the results of studying the functional activity of the pituitary-gonadal system by studying the levels of follicle-

stimulating hormone, luteinizing hormone, prolactin, testosterone, estradiol, progesterone in blood serum.

Statistical processing was carried out using parametric and non-parametric methods of statistical analysis. The χ^2 method using a four-column (for two gradations) table was used to assess the dependence between the numerical series of qualitative characteristics. The results of statistical data processing were reduced to the "p" indicator. Its values less than 0.05 ($p < 0.05$) were considered statistical confirmation of a probable discrepancy.

Research results and their discussion

There were 37 (72.5%) of the examined children in the prepubescent phase, of which 8 were girls (21.6%) and 29 were boys (78.4%). 14 (27.5%) children are in the puberty phase, of which 4 are girls (28.6%) and 10 are boys (71.4%). The state of increased bronchial sensitivity was registered in all children, which once again proves that the main pathogenetic component of bronchial asthma is bronchial hyperactivity.

In the group of girls, 5 girls had high-threshold non-specific bronchial hypersensitivity status (three in the prepubertal phase and two in the pubertal phase). The condition of non-specific bronchial hypersensitivity with an average threshold was detected in 7 girls (five in the prepubertal phase and 2 in the puberty phase). The study of sexual development of girls showed that in the phase of prepuberty, normal sexual development was detected in 3 girls. Early sexual development according to the isosexual type was recorded in five girls. Determination of relationships between sexual development and the degree of expression of increased non-specific bronchial sensitivity did not reveal a reliable dependence ($\chi^2 = 0.3 < \chi^2_{0.05} = 3.84$ or $p > 0.05$).

In girls in the phase of puberty, the condition of high-threshold non-specific bronchial hypersensitivity was determined in 2 girls with an early isosexual type and in one child with normal sexual development. The average threshold of non-specific bronchial hypersensitivity was recorded in 2 girls (1 with normal and 1 with early sexual development). There was no significant relationship between sexual development and the severity of increased non-specific bronchial sensitivity ($\chi^2 = 0 < \chi^2_{0.05} = 3.84$ or $p > 0.05$).

In the group of boys in the prepubertal phase, 24 children had normal sexual development, 8 of them had a high threshold of non-specific bronchial hypersensitivity and 16 had an average threshold of non-specific bronchial hypersensitivity. 5 boys had an isosexual type of early sexual development. Of them, 2 had a high and 3 had a medium threshold of non-specific bronchial hypersensitivity. However, there was no significant relationship between sexual development and the severity of increased non-specific bronchial sensitivity ($\chi^2 = 0.05 < \chi^2_{0.05} = 3.84$ or $p > 0.05$).

The boys in the puberty phase had 7 children with normal sexual development. Of them, 4 had a high threshold of non-specific bronchial hypersensitivity, and the rest had an average threshold. In three boys of this group, early sexual development according to the isosexual type was found, and all of them had an average threshold of non-specific bronchial hypersensitivity. Statistical data processing did not reveal a reliably proven relationship between sexual development and the degree of severity of increased non-specific bronchial sensitivity ($\chi^2 = 0.97 < \chi^2_{0.05} = 3.84$ or $p > 0.05$).

Conclusions

Thus, in children suffering from bronchial asthma, the increased threshold of nonspecific bronchial sensitivity does not depend on the activity of the hypothalamic-pituitary-gonadal system, which determines sexual development.

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