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CORRELATION BETWEEN MAXILLOFACIAL PARAMETERS IN CHILDREN AGED 3-11 YEARS AND CHILDREN WITH ADENOID HYPERTROPHY

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Annotation. The proportion of children with chronic adenotonsillitis varies 20-50%, and among frequently ill children these diseases are 37-70%. This indicates an increase in hypertrophy of the pharyngeal tonsil, an increase in the frequency of adenoid pathology in children, which adversely affects the structural formation of the jaw complex. It has been revealed that the influence of a long-term course of diseases in children leads to a violation of the formation of the facial skeleton, which is reflected in the form of a sagging lower jaw. the formation of its narrow and distant, improper development of the hard palate and occlusion. In the development of dentoalveolar anomalies at the age of 8-10 years, a significant role is played by diseases of the ENT organs, in particular, the proliferation of adenoids.

Keywords: cephalometry, adenoid hypertrophy, children, correlation.

Objective: to analyze the correlation between cephalometric parameters of children aged 3-11 years and children with adenoid hypertrophy

Materials and methods: 421 children with adenoids in the city of Bukhara aged 3-11 years were examined. The subject of the research was the anthropometric parameters of the head and face.

Introduction. Although there are advances in the diagnosis and treatment of adenoids in children, they are diagnosed quite late. As a result, this harms the quality of treatment of patients (Skordis N et al., 2012).

The growth and development of the human body from the embryonic stage to its adult state is a very complex phenomenon consisting of many changes under the neurohumoral regulatory mechanisms that control the differentiation, development and maturation of organs and systems. Various reasons such as familial and pathological can affect the growth parameters of various parts of the human body

Knowledge of the patterns of growth and development of facial bones will help prevent an increase in the number of disorders in the maxillofacial area (D.A. Domenyuk, 2016).

The number of works devoted to the study of the morphogenesis of the craniofacial complex in childhood in one or another pathology, especially in hypertrophy of the pharyngeal tonsil, is extremely limited. It is known from the literature that the maxillofacial area undergoes radical transformations in the process of development. (V.T. Yagupova, 2019).

In the literature, it is shown that mental stress (Lukina S.F. et al., 2012) affects the physical and functional development of children (Mazen Mohammed Youssef Hassan Hussein., 2014).

The mechanisms that regulate the growth of the human head and face are complex processes where there is an interaction between hormones and epigenetic factors. The above factors determine the formation of craniofacial bones, the violation of which can lead to irreversible changes in this area (Juloski J. et al., 2016).

With a violation of the interaction of regulatory factors for the growth of the bones of the facial skeleton, there is an unequal slowdown in bone growth, which leads to anomalies in the formation of the face. In various genetic abnormalities or syndromic pathologies, there is a lag in the development of the dentition (Haynes A, Bulsara MK., 2012).

Knowledge of facial dysmorphic features is important in the diagnosis of many congenital diseases, such as Down syndrome or fetal alcoholic disease (Koca C.F. et al, 2016, Suttie M. et al, 2018). Some chronic diseases that occur during the development period can lead to abnormalities in facial parameters. A group particularly susceptible to the development of craniofacial anomalies are children with chronic nasopharyngeal obstruction, who often have mouth breathing. In the long term, mouth breathing can lead to an increase in the anterior height of the face, a retrognatic mandible, a steep angle of the mandible, lip incompetence and narrow maxillary and mandibular dental arches. The combination of these changes is usually called an "adenoid face" because it is characteristic of children with hypertrophy of the adenoids and tonsils (Nagaeva T.A. et al., 2016, Tastanova G. et al., 2021, Koval Yu.N. et al., 2021).

The mechanistic nature of abnormal facial growth in children is a consequence of adenotonsillar hypertrophy. The classical model suggests that an unclear inflammatory process or infection leads to hypertrophy of the adenoids or tonsils. Enlarged adenoids and tonsils block the upper airways and force the child to breathe through the mouth. (Arsenina O. I. et al. 2014) due to weak stimulation of local bones (Pawłowska-Seredyńska K. et al. 2020, Chuang H. H. et al. 2020).

An open mouth often results in a downward position of the tongue, which can lead to a low position of the lower jaw and head. However, there is evidence that children with adenoids and tonsil hypertrophy have abnormal nocturnal hormone secretion. It has been proven that a decrease in growth hormone secretion may be associated with the posterior size of the face due to the short branch of the lower jaw (Tastanova G.E., Khodzhanov Sh., 2021).

Results of the study: The analysis of the data obtained revealed a different correlation between the cephalometric parameters of children.

In healthy 3-year-old children, there was a strong correlation between the longitudinal diameter of the head and the head circumference (r=0.80), and in children with adenoids, there were medium relationships between the physiognomic and morphological heights of the face, with the height of the nose (r=0.51-0.59), as well as the interorbital width and diameter of the lower jaw, zygomatic diameter (r=0.38-0.49).

In 4-year-old children with hypertrophy of the pharyngeal tonsil, a moderate correlation was found between the transverse diameter of the head and the circumference of the head, zygomatic and mandibular width (r=0.56-0.70); and in practically healthy children, the physiognomic and morphological heights of the face are associated with an average correlation with the longitudinal diameter of the head (r=0.26-0.43)

In 5-year-old practically healthy children, the height of the nose is associated with the height of the mucous membrane of the lips, the morphological height of the face and the diameter of the lower jaw are weakly related to the zygomatic and external orbital width, (r=0.510.61), in children with adenoid overgrowth, a moderate correlation was observed with the longitudinal and transverse diameters of the head, physiognomic height of the face, width and height of the nose (r=0.340.49).

In 6-year-old children with adenoid hypertrophy, head circumference had a strong correlation with the longitudinal diameter of the head (r=0.80), and a moderate relationship was observed in the control group between the transverse diameter of the head, forehead height, physiognomic and morphological heights of the face (r=0.70.56).

A strong correlation was found between physiognomic height and head circumference at 7 years of age in children in the control group, and in children with adenoids there was a strong correlation between the height and width of the nose, as well as zygomatic and mandibular diameter (r=0.530.70), but a moderate correlation was found between the transverse diameter of the head and the height of the forehead (r=0.350.50).

In 8-year-old children with adenoid hypertrophy, the height of the forehead is strongly related to the morphological height of the face, head circumference (r=0.750.90), in the children of the control group, a mean correlation of head circumference with the longitudinal diameter of the head, height of the nose and lips, physiognomic height of the face, zygomatic and mandibular diameter (r=0.590.72) was revealed.

Table 1

Comparative assessment of the correlation of children's facial parameters according to Pearson

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M / D	Zygomatic diameter	Mandibular diameter	Morphological height of the face	Physiological height of the face	Nose height	Nose width	Outer orbital width	Interorbital width	Height of the mucous membrane of both lips	Mouth width
Zygomatic diameter	1	,783**	,175*	,363**	,517**	,243**	,504**	,393**	,352**	,509**
Mandibular diameter	,760**	1	,197**	,446**	,531**	,285**	,595**	,501**	,395**	,605**
Morphological height of the face	,280**	,343**	1	,270**	,451**	,107	,249**	,069	-,074	,374**
Physiological height of the face	,298**	,279**	,337**	1	,308**	,392**	,170*	,562**	,418**	,361**
Nose height	,591**	,533**	,184**	,287**	1	,310**	,544**	,345**	,290**	,686**
Nose width	,324**	,467**	,235**	,386**	,375**	1	,092	,547**	,510**	,467**
Outer orbital width	,569**	,609**	,342**	,317**	,271**	,290**	1	,330**	,372**	,441**
Interorbital width	,359**	,421**	,121	,274**	,492**	,400**	,147*	1	,740**	,483**
Height of the mucous membrane of both lips	,231**	,187**	,104	,368**	,119	,381**	,372**	,220**	1	,407**
Mouth width	,722**	,745**	,398**	,354**	,473**	,312**	,619**	,268**	,263**	1

Note:**. The correlation is significant at the level of 0.01 (bilateral).*. The correlation is significant at the level of 0.05 (bilateral).

In 9-year-old healthy children, the morphological height of the face forms an average correlation only with the physiognomic height of the face (r = 0.54). In children with overgrowth of adenoids, weak

the relationship between the zygomatic and mandibular diameters (r=0.190.11).

In 10-year-old children with adenoid hypertrophy, the physiognomic height of the face is associated with an average correlation with head circumference, nasal width and morphological height of the face, zygomatic width and height of the nose (r=0.510.73). In healthy children

Moderate connections were found with longitudinal and transverse diameters of the head, mandibular width.

In practically healthy children of 11 years of age, the morphological height of the face is strongly correlated only with the transverse size of the forehead (r=0.360.41). The average correlation was found with head circumference, longitudinal diameter of the head, zygomatic diameter and jaw width. In children with adenoids, a strong correlation was found linking the studied parameter of morphological height of the face with the physiognomic height of the face, the width of the lower jaw (r=0.510.72).

Conclusions: Thus, the cephalometric parameters of children 3-11 are interconnected by correlations of different strength and direction. In practically healthy children, strong correlations were found between the circumference of the head and its longitudinal diameter; morphological height of the face and height of the lower part of the face, depth of the face and height of the mandibular branch; and children with adenoids between zygomatic and jaw width; depth of the face and length of the body of the lower jaw; height of the body and branch of the mandible; and the length of the body of the lower jaw (r=0.750.90).

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