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Growth Rate of the Craniofacial Region of Children with Congenital Cleft Lip and Palate in Comparison of Children without Anomaly

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ABSTRACT

For the researching, out of 630 children, 70 children with bilateral congenital cleft lip and palate (DCCLP) were selected. In our study, we studied the morphometric parameters of the craniofacial region of children with BCCLP and compared them with the parameters of the craniofacial region of children without anomalies and revealed significant differences in the parameters of the craniofacial region. Which can be useful for theoretical, methodological development and improvement of morphometric methods of reconstruction in medicine.

KEYWORDS: physical development, child, anthropometry, craniofacial region, congenital cleft lip and palate.

RELEVANCE

Congenital cleft lip and/or palate (CCLP) accounts for 88% of congenital malformations of the dentition. CVLP has a great influence on the formation of the dentoalveolar system of a child [1-3]. More than 20,000 children with CCLP are born in the Russian Federation every year.

The high incidence of congenital malformations (CM) of the maxillofacial region, the lack of a unified system of interdisciplinary registration, despite the opening of departments of maxillofacial surgery in all regions of Russia and the presence of a regional rehabilitation system, insufficient awareness of doctors and parents causes untimely provision of specialized care to children with this pathology. Knowledge of the epidemiological situation of CCLP, the reasons for their development will make it possible to properly organize prevention and a multi-stage rehabilitation system.

“One of the main causes of congenital cleft lip and palate is maternal illness in early pregnancy. This may be the influence of psychogenic factors: severe stress, unrest. This may be work at some enterprises with occupational hazards. Undoubtedly, bad habits cause irreparable harm to the development of the fetus. According to statistics, about 10-15% of the total number of children born with clefts have a genetic predisposition,” informs the head of the Department of Pediatric Maxillofacial and Plastic Surgery (Department 8) of the Federal State Budgetary Institution “Turner National Research Center for Pediatric Traumatology and Orthopedics” of the Ministry of Health Russia, candidate of medical sciences, maxillofacial surgeon Stepanova Y. V.

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THE PURPOSE OF OUR RESEARCH

To study the criteria of the craniofacial region of children with congenital cleft lip and palate based on the morphometric parameters of the craniofacial region and compare with the parameters of children without anomalies.

MATERIALS AND METHODS

630 children aged from 3 to 12 years were examined. Among them, 390 (61.9%) boys, 240 (38.1%) girls who underwent surgical manipulation, depending on the severity of the anomaly of the lip and palate, as well as children without anomalies, treated for other various diseases of the maxillofacial area in the department of maxillofacial surgery at the Bukhara Children's Multidisciplinary Medical Center in Bukhara in the period from 2009 to 2018.

All studied children were divided into 3 groups, depending on the type of anomaly.

TABLE 1. The total number of children is 630.

1 group - main group BCCLP		2 group - control group Children without anomaly		3 group - comparative group UCCLP	
70 children		318 children		241 children	
boys	girls	boys	girls	boys	girls
44 (63%)	26 (37%)	189 (59%)	129 (41%)	156 (65%)	85 (35%)

Table 2. Distribution of children by place of residence

630 children	
Rural	Urban
301 (48%) children	329 (52%) children

To achieve this goal, a morphometric study was carried out and morphometric parameters of the craniofacial region of children of the 1st and 2nd period of childhood with CCLP were obtained, clinical and anthropometric methods were used, followed by statistical processing of the data.

When performing this work, the method of anthropometric studies of children was used according to the methodological recommendations of N. Kh. Shomirzaeva, S. A. Ten and Sh. I. Tukhtanazorova (1998).

A total of 630 children took part in the study. In our study, the number of boys 390 (62%) prevailed over the number of girls 240 (38%). Exactly half of the children studied were children without anomalies (50%). CCLP unilateral occurred in 38% of cases and CCLP bilateral occurred in 11% of cases.

We assessed the craniofacial region. The results obtained by us on the study of the anthropometric parameters of the face of boys and girls aged 3-12 years with CCLP showed that the size of the face gradually increased in close relationship with the increase in the age of the children.

Significant differences in facial parameters were observed mainly from the age of 5 in boys and from the age of 7 in girls compared to 3 years of age, along with this, significant differences were clearly observed from the age of 6-7 years. The data of 10-12-year-old

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children with CCLP were very different and differed; this is especially noticeable in the parameters of the face of the studied contingent.

The parameters of the craniofascial region were very different in the 1st group of children with BCCLP, starting from the age of 6-7 years, the study showed that the morphological and physiognomic height of the face in children with BCCLP (Pic-1.) is less than in children with UCCLP (Pic-2.) and children without anomalies. The angles of the lower jaw are more obtuse in the 1st group of children on both sides of both sexes.

This indicates a delay in the formation of the upper jaw, since due to the surgical manipulations performed such as cheilorhinoplasty and uranoplasty, there is a postoperative scar in the region of the upper lip, it is likely that in children with BCCLP, due to postoperative scars on the lip and palate, tissues in this area do not develop as much as possible, which prevents the growth of the upper jaw.

With underdevelopment of the upper jaw, the lower jaw rises as much as possible in the chin area, which leads to the sharpness of the angles of the lower jaw, depending on the side of the congenital anomaly.

In addition, in all groups of children without anomalies and of both sexes, the angle of the lower jaw on the affected side is sharper than on the unaffected side. This parameter indicates a stronger physical development of the unaffected side of the mandible compared to the affected side of the mandible. The rate of development of parts of the face was not the same in comparison with the age, gender and study groups of the studied children.

CONCLUSIONS

1. Significant differences in the parameters of the craniofacial region were found mainly from the age of 5 in boys and from the age of 7 in girls, compared with 3 years of age; data on children with CCLP at the age of 10-12 years were very different, especially in the parameters of the facial area of the subjects.
2. Morphometric studies of the craniofacial region of children suffering from CCLP showed that the larger the cleft, the greater the deviations in the morphometric parameters of the craniofacial region. However, isolated clefts can also have a negative impact on the physical development of the child, and depending on the side of the cleft, changes in the morphometric parameters of the craniofacial region can be observed bilaterally.
3. The surgical procedure chosen to close the cleft lip and palate helps to eliminate these cosmetic defects and restore the beauty of the face, but postoperative scars (iatrogenic factor) subsequently form fibrous adhesions that do not allow the maxillary bone tissue to grow freely, which also causes a change in shape lower jaw.
4. To improve the efficiency of the physical development of special children, that is, children with CCLP, it is necessary, together with pediatricians, general practitioners, orthopedic surgeons, dentists, maxillofacial surgeons and other specialists, to constantly conduct anthropometric measurement of the craniofacial region of children with CCLP after surgery.

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