American Journal of Medicine and Medical Sciences 2022, 12(9): 924-928
DOI: 10.5923/j.ajmms.20221209.16

Scientific Interpretation of the Indicators of the Decrease in Quality of Life in Children with Congenital Lip and Palate Defects

Khalmanov Bakhodir Abdurashidovich

Tashkent State Stomatology Institute, Department of Surgical Stomatology and Dental Implantology, Uzbekistan

Abstract The organization and holding of this complex is possible only in the conditions of a large specialized center. Of all the presented results of studies on the influence of groups of risk factors on the development of congenital cleft lip and palate in children related to heredity, lifestyle, environment, the influence of the organization of medical care remains unexplored.

Keywords Congenital cleft lip and palate, Obturator, Maxillofacial surgery, Speech disorder, Diffusion

1. Introduction

Congenital cleft lip and palate is one of the most common malformations in children that have a significant medical and social impact on the self-realization of such patients in society. Comprehensive treatment of children with cleft lip and palate is complex and multi-stage. Treatment is carried out by highly qualified specialists. Children's health is the future of the state, the potential for the development of society. However, despite the success in strengthening and protecting children's health, congenital anomalies in the structure of childhood morbidity, disability and mortality still occupy a leading position [1]. A special place among congenital anomalies in children is occupied by congenital malformations of the maxillofacial region - cleft lip and / or palate: this pathology is considered one of the most common and severe among congenital anomalies and takes 3-4th place in their structure [2].

Currently, orthodontic treatment techniques have been developed aimed at dissociating the tongue from the lower jaw, allowing to coordinate the strength of the tongue to stimulate the growth of the upper jaw, which contributes to the normalization of myodynamic balance in the maxillofacial region in patients with cleft lip and palate. In connection with the foregoing, the study of the effect of orthodontic appliances to normalize the position of the tongue in the oral cavity on the function of sound pronunciation in children with cleft lip and palate is a hot topic. It should be noted that the isolated form of this pathology occurs in 7.6-41.4% of cases, while in the composition of symptom complexes (along with heart malformations and other congenital developmental anomalies), which are caused by various mutations, chromosomal disorders (for example, deletion of chromosome 22) cleft lip and/or palate are described in 21.1-61.2% [6,7,8]. Congenital malformations of a person cause not only medical, but also social problems: in patients, along with severe violations of the functions of the affected organs and body systems, difficulties arise with adaptation in society. In the future, they face the problem of obtaining a profession and employment (35.2% of patients indicate that it is almost impossible to find a job with a congenital cleft lip and palate), which determines the medical and social significance of the problem and the relevance of the study in this direction [8,9]. In addition, many patients with a congenital malformation of the maxillofacial region have a disability group due to difficulties in restoring impaired vital functions - nutrition, breathing, speech. Considering that congenital cleft lip and palate accounts for 18% of all cases of congenital anomalies, the problems of anatomical reconstruction of the upper lip, nose and upper jaw in childhood lead to the disability of every fifth child [10-12].

Received: Aug. 22, 2022; Accepted: Sep. 12, 2022; Published: Sep. 15, 2022
Published online at http://journal.sapub.org/ajmms

2. Materials and Methods

The World Health Organization defines the solution to the problem of disability in congenital cleft lip and palate as a strategic task: first of all, it is the development of a quality assessment system for the integrated medical, psychological, pedagogical and social rehabilitation of patients in medical organizations [13]. According to different studies, the risk

factors for the development of the pathology of congenital cleft lip and palate have significant variability. There are 4 groups of risk factors: genetic factors, environment, lifestyle, organization of medical care [7]. At the same time, numerous studies are devoted to the study of risk factors, which give their classifications. For example, exogenous risk factors are distinguished (unfavorable material, social, living conditions); medical and biological factors (anthropogenic impact of the environment, occupational hazards in parents, xenobial load); medical-organizational factors. Endogenous factors include bad habits, impaired reproductive function, sexually transmitted diseases, Rh conflict, genetic factors, somatic and infectious diseases in the child's parents. Some Russian researchers also note the impact of the place of residence on the increase in the number of births of children with congenital cleft lip and palate: in particular, in families living in industrialized regions of Russia, over the past 15 years, there has been an increase in the frequency of births of children with this pathology [8,9]. The results of a study conducted in the Krasnodar Territory on a group of environmental risk factors are interesting. It was found that the average frequency of cases of congenital cleft lip and palate is statistically significantly associated with an increase in the degree of ecological trouble of the territory - the level of pollution of the atmospheric air, sewage and soil: the average frequency of congenital anomalies in such conditions is 20% higher than the incidence rate in the least polluted areas [7]. Numerous studies confirm the significance of a group of genetic risk factors, such as, for example, the presence of congenital malformations in relatives, the age of parents at the time of conception, the serial number of pregnancy, childbirth, the number of children in the family, the season of conception [11,18], and the group ‘‘image life", namely occupational hazards (for example, working in contact with detergents and pesticides, contact with chemicals), bad habits of parents (alcoholism, smoking, drug addiction, taking certain medications, such as anticonvulsants or drugs), excess or lack of vitamin A and folic acid (both as part of multivitamins and in the diet) [16,8]. There are practically no studies on the group of risk factors "organization of medical care" in the provision of medical care to children with congenital cleft lip and palate and their families. In single studies, attention is drawn to the imperfect organization of medical care for such patients. For example, studies note that the lack of a unified registration system, insufficient awareness of doctors and parents cause untimely provision of specialized assistance to children with congenital cleft lip and palate [17]. The problem of an integrated approach to the organization of specialized medical care and rehabilitation of children with congenital cleft lip and palate continues to be underdeveloped [12].

Dental anomalies and deformities occupy the third place among dental diseases after caries and periodontal diseases. Their prevalence ranges from 11.4% to 80% [20]. Congenital bilateral cleft lip and palate (CMPA) accounts for 12–25% of cases among other forms of facial clefts and is a severe type of pathology of the maxillofacial region [19]. The study of the frequency and prevalence of ADRVGN is very relevant in modern dentistry [9]. Cleft lip and palate is one of the most common congenital pathologies [18]. With this anomaly, one child out of 1000 newborns is born, which is approximately 0.04% of the total population of the planet [17]. VDDVGN ranks second in frequency and is the most severe malformation of the face and jaws. According to E.A. Salmina (2018), children with cleft lip and palate need complex, long-term and systematic treatment, they must be registered with the dispensary for life. In patients with cleft lip and palate, the quality of life noticeably deteriorates. To increase the effectiveness of the subsequent work of the psychological and pedagogical service in the system of complex rehabilitation of children with ADHD, it is necessary from the first days of life to plan an individual program for the restoration of vital functions: breathing, sucking, swallowing (Postnikov M.A. et al., 2019; Karpov A.N. et al., 2020). Carrying out early orthodontic treatment (ROT) for children from the first days of life is a preparatory link in the preoperative period, which is aimed at creating favorable conditions for subsequent surgical intervention [20]. ROL is expedient for separating the oral cavity and the nasal cavity, for preventing the development of secondary deformities and normalizing the feeding process.

Timely diagnosis and treatment planning determine the success of the rehabilitation of children with this complex and multifaceted pathology. The result of surgical treatment and an interdisciplinary approach depends on the timing and scope of orthodontic care. An analysis of domestic and foreign literature showed that there is no consensus among practitioners about the rational timing and methods of providing early orthodontic care to children with ADHD in the first year of life. All of the above confirms the relevance of the chosen direction, determines the purpose and objectives of this study.

Cleft lip and palate is a widespread and severe malformation of the face and jaws that occurs as a result of a genetically determined pathology or teratogenic effects of environmental pollution. The growing influence of the environmental factor explains the increase in the birth of children with this pathology. At the same time, in the problem of habilitation and rehabilitation of patients with congenital pathology of the face and jaws, there are still not fully realized reserves of a complex effect on the body of a child with a defect. Even a highly qualified surgeon cannot always foresee postoperative complications, and they are dangerous in terms of maladaptive changes, including social changes [16]. Despite the large number of surgical methods for eliminating cleft lip and palate (CLP), there is still a large percentage of complications, manifested in speech impairment caused by an inferior function of the structures of the anatomical formation restored after uranoplasty - the palatopharyngeal ring (PGC) (Ad.A. Mammadov, 2015).

The history of the development of orthodontic treatment

followed the path of using various devices from the arsenal of technical means available at a particular stage in the development of medical technology; many temporary devices were created, the use of which made it possible to establish natural and artificial feeding of the child. Science and technology followed the path of developing devices for constant wear, contributing to the improvement of breathing, and in the future - the development of speech. In 1575, A. Pare first called these devices "obturators". The term "obturator" has become widespread and is still used today.

It seems that there should always be an alternative and the possibility of choosing methods of treatment, especially in older patients with severe, extensive soft palate defects, with palatopharyngeal insufficiency. It is important to make a correct and constructive choice of surgical and restorative benefits, to offer them comprehensively to the patient, taking into account modern standards of this care and the quality of their implementation. At the same time, the aspect of the quality of medical care consists of objective and subjective components. Therefore, we emphasize once again that the study of the problem of NGN and the search for ways to eliminate it requires specialists to have a clear knowledge of objective methods for registering this insufficiency, methods for restoring the function of NGC and the development of speech in the dynamics of observation of the patient. On the part of the patient and his parents, a conscious understanding of the importance of work to restore speech and difficulties during the entire rehabilitation period is necessary.

Various modifications of temporary devices for feeding a child proposed by many authors solved one problem - temporary separation of the oral cavity and nose during feeding a child. For the rest of the period, the oral and nasal cavities freely communicated with each other, which inevitably led to a violation of the function of breathing, and then speech.

In parallel with the creation of temporary obturators, the search for specialists was aimed at developing devices that would be constantly in the mouth of a child, separating the mouth and nose, helping to improve external breathing and form correct speech.

3. Result and Discussion

This strategy was reflected in the main tasks set for the teams of the Centers: surgical correction of the maxillofacial defect in the early stages (from the neonatal period (from 0 to 29 days) to 1.5 years); full completion of surgical correction - by 3-5 years, by the time active speech is formed; organization and conduct of audiological and speech screening of newborns and children of the 1st year of life; further development and implementation of modern medical and diagnostic complexes; organizing and conducting training courses to improve the skills of surgeons, audiologists, nurses, speech therapists; creation of an effective system of reporting and evaluation of the quality of work of medical personnel.

Anatomical disorders of the maxillofacial area in children with cleft lip and palate (CLP) begin to form already in the period of intrauterine development [2,11]. Even in the early stages of fetal development, an imbalance of forces occurs between the work of the muscles surrounding the oral cavity and the tongue. The growth processes of the maxillofacial region are disturbed, there are deformations of the soft and hard tissues of the dentition [12].

In general, they can be divided into primary and secondary deformations.

The primary deformation is due to the malformation itself, the presence of communication between the oral and nasal cavities, and is observed at the birth of a child. The secondary deformity develops during the growth of the child and after surgical interventions on the upper jaw and soft tissues of the middle zone of the face, and thus joins the primary deformity. Cicatricial deformity of the nose, upper lip and palate prevent the growth of the upper jaw, and determines the characteristic features of the deformity of the upper jaw and underdevelopment of the middle zone of the face [2,8].

Violation of the function of anatomical structures causes speech disorders, which correspond to the degree of insufficiency of the closure of the palatopharyngeal ring [11].

The domestic and foreign literature available to us describes in detail the primary and secondary deformations of the jaws and soft tissues of the lips, nose and palate in patients with RGN, and their impact on speech. Various authors have expressed the need to act on damaged anatomical structures in order to normalize speech. However, the relationship between structural features, motor language disorders and speech disorders in this group of patients and the possibility of orthodontic correction of the 13 position of motor activity of the tongue, their influence on sound pronunciation and speech formation were not considered.

4. Conclusions

In the studies of N.V. Starikova (2006-2014) described in detail the position of the tongue in the oral cavity and the features of its structure in patients with RGN. It is characteristic for them that in a state of physiological rest, the top of the tongue exerts pressure on the base of the alveolar part of the lower jaw, while the back and root of the tongue are high, in newborns they penetrate into the nasal cavity through a cleft. This position of the tongue is also observed after surgical restoration of the integrity of the palate and separation of the oral and nasal cavities. Due to the pathological position and function of the tongue described above, there is excessive pressure on the alveolar part of the lower jaw, there is no contact of the tip of the tongue with the palate, and the myodynamic balance of the mouth is disturbed. Stimulation of the growth of the upper jaw does not occur, which leads to its underdevelopment in

the sagittal and transversal planes, lower promacrognathia, and lingual inclination of the lower teeth. Patients with RGN are characterized by a flat or concave profile, underdevelopment of the midface [8,14]. Many authors described the developed methods aimed at: normalizing myodynamic balance in the oral cavity, reducing secondary iatrogenic jaw deformities in patients with RGN. To date, there are developments of both speech therapy methods for correcting the position of the tongue in the oral cavity in patients with RGN, and orthodontic appliances to perform this task [13].

REFERENCES

[1] Fozilov U. A. Diagnosis And Prevention Of Caries Development In Orthodontic Treatment //World Bulletin of Social Sciences. – 2021. – Т. 3. – №. 10. – С. 97-104.

[2] Fozilov, U. A. (2021). Diagnosis And Prevention Of Caries Development In Orthodontic Treatment. *World Bulletin of Social Sciences*, *3*(10), 97-104.

[3] Hoffmann F, Eismann D. Die yesammtflacheokklusaler kontakte in der statischer okklusion an gebigmodellen. In: Kirch W, Middeke M, Rychlik R, ed. Leitlinien in der Zahn-, Mund- und Kieferheilkunde. bd. 72, No. 8. Aspekte der Pravention; 2010. RR. 795-802.

[4] Vasiliev Yu.A., Redko A.N., Gulenko O.V., Udina I.G. Detection of congenital cleft lip and palate during prenatal ultrasound examination in the Krasnodar Territory // Russian Journal of Dentistry. - 2017. - T. 21. - No. 4. - S. 190-193. [Vasil'ev YUA, Red'ko AN, Gulenko OV, Udina IG. Prenatal ultrasonic detection of congenital clefts of lip and palate in krasnodarskii krai. Rossijskij stomatologicheskij zhurnal. 2017; 21(4): 190-193. (In Russ).] doi: 10.18821/1728-2802-2017-21-4-190-193.

[5] Kurbatova O.L., Vasiliev Yu.A., Pobedonostseva E.Yu., et al. Territorial distribution of the frequency of congenital cleft lip and/or palate in the Krasnodar Territory due to environmental pollution // Kuban Scientific Medical Bulletin . - 2013. - No. 6. - P. 111-114.

[6] Namazova-Baranova L.S., Ginter O.V., Polunina T.A., Davydova I.V., Savost'yanov K.V., Pushkov A.A., Zhurkova N.V., Mospan T. .I. algorithm for early diagnosis and treatment of chromosome deletion syndrome 22 (22q11.2).

[7] Chuikin S.V., Davletshin N.A., Averyanov S.V., Chuikin O.S. Surgical methods of treatment of children with congenital cleft lip and palate. - Ufa: Publishing house of GOU VPO "Bashkir State Medical University of Roszdrav", 2011. - 160 p. [Chuykin SV, Davletshin NA, Aver'yanov SV, Chuykin OS. Khirurgicheskie metody lecheniya detey s vrozhdennoy rasshchelinoy verkhney guby i neba. Ufa: Bashkirskiy gosudarstvennyy meditsinskiy universitet Roszdrava; 2011. 160 rubles. (In Russian).]

[8] Eurocat Data [Internet]. Analyze congenital anomalies and compare performance across population groups or geographic areas. Available from: https://eu-rd-platform.jrc.ec.europa.eu /eurocat/eurocat-data_en.

[9] Kabanova S.A., Kabanova A.A., Dubovets A.V., Masyuk N.Yu. Awareness of doctors-specialists in Vitebsk in the issues of complex rehabilitation of patients with cleft lip and palate. Bulletin of VSMU. Dentistry. - 2013. - T. 12. - No. 4. - S. 118-122.

[10] Inoyatov A.Sh., Saidova M.A., Shodmonov K.E. Analysis of factors contributing to the development of congenital malformations of the maxillofacial region // Bulletin of the Council of Young Scientists and Specialists of the Chelyabinsk Region. - 2016. - T. 3. - No. 4. - S. 51-55. [Inoyatov ASh, Saidova MA, Shodmonov KE. The analysis of factors of the congenital defects of maxillofacial area promoting development. Vestnik Soveta molodyh uchenyh i specialistov Chelyabinskoj oblasti. 2016; 3(4): 51-55. (In Russian).]

[11] Tokarev P.V., Shulaev A.V., Plaksina L.V., Marapov D.I. The prevalence of congenital cleft lip and/or palate in the Republic of Tatarstan // Practical Medicine. - 2015. - No. 2-2. — S. 101-103. [Tokarev PV, Shulaev AV, Plaksina LV, Marapov DI. Prevalence of congenital lip and/or palate clefts in Tatarstan Republic. Prakticheskaya Meditsina. 2015; (2-2): 101-103. (In Russian).]

[12] Shakirova R.R., Uskova M.P., Bibik T.V. Dental anomalies in children with congenital cleft lip and/or palate in the Udmurt Republic // Practical Medicine. - 2009. - No. 1. - S. 87-88. [Shakirova RR, Uskova MP Bibik TV. Dentomaxillaris anomalies at children with congenital crevices of a lip and/ or the sky in the Udmurt Republic. Prakticheskaya medicina. 2009; (1): 87-88. (In Russian).]

[13] Shakirova RR The structure of dentoalveolar anomalies in children with congenital cleft lip and palate in the Udmurt Republic // Collection of scientific abstracts and articles "Health and education in the XXI century". - 2008. - T. 10. - No. 4. - S. 701-702. [Shakirova RR. Struktura zubochelyustn ykh anomaliy u detey s vrozhdennymi rasshchelinami guby i neba v Udmurtskoy Respublike. Sbornik nauchnyh tezisov i statej “Healthy i obrazovanie v xxi veke”. 2008; 10(4): 701-702. (In Russian).]

[14] Udina I.G., Vasiliev Yu.A., Pobedonostseva E.Yu., et al. Spatio-temporal frequency dynamics of congenital cleft lip and/or palate in the Krasnodar Territory // Kuban Scientific Medical Bulletin. - 2013. - No. 1. - S. 171-175.

[15] Eshiev A.M., Darbishev E.P., Davydova A.K. Frequency and reasons for the birth rate of children with congenital clefts in the southern region of Kyrgyzstan // Young scientist. - 2014. - No. 21. - S. 39-41.

[16] Starikova, N.V. Orthodontic correction of abnormal tongue position and function in children with unilateral cleft lip and palate: abstracts/ N.V. Starikova, A.G. Nadtochiy, N.V. Udalova// 9-th European Craniofacial Congress. - Salzburg, Austria, 2011. - P. 253.

[17] Steele, C. M. Tongue movements during water swallowing in healthy young and older adults/ C. M. Steele, P. Van Lieshout // Journal of Speech, Language, and Hearing Research. - 2009. - Vol. 52, №. 5. - P. 1255-1267.

[18] Younkin, S. G. A genome-wide study of de novo deletions identifies a candidate locus for non-syndromic isolated cleft lip/palate risk/ S.G. Younkin et al. //BMC genetics. - 2014. - Vol. 15, №. 1. - P. 24.

[19] Zharkova, N. A normative-speaker validation study of two indices developed to quantify tongue dorsum activity from midsagittal tongue shapes/ N. Zharkova //Clinical linguistics & phonetics. - 2013. - Vol. 27, №. 6-7. - P. 484-496.