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Article

Analysis of the Relationship Between Somatic Diseases and Dentofacial Abnormalities and Deformities in Children

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Abstract: 801 patients under 18 years of age diagnosed with dental anomalies and deformities were studied based on medical records, anamnesis and complaints of children. The study presents an analysis of the somatic diseases experienced by these children, dental diseases, including changes in the oral mucosa.

Keywords: Anomaly, deformity, anemia, endocrine diseases, trauma, orthodontic disease, maxillofacial pathology.

Introduction

It has been shown that dentofacial deformities occur in children of various ages depending on their functional impairments. Today, it is no secret that the results of treating these pathologies depend on an accurately established diagnosis; therefore, timely diagnosis in children allows for timely and correct treatment, prevents complications, and improves the quality of life for these children. To do this, it is necessary to study and evaluate the defects in the position of teeth and jaws in these children (Averyanov S.V. 2016). It is advisable to study the characteristics of emerging functional disorders, the results of identifying risk factors contributing to the formation of formed dentofacial deformities, and the medical and social aspects that caused the problem [1]. However, to achieve the aforementioned results, it is necessary to provide the clinical characteristics of the examined sick children.Only on their basis can the diagnosis, treatment, and prevention of complications in these sick children be optimized .Taking into account the above, we deemed it necessary to identify and analyze the clinical characteristics of acquired diseases, dental diseases, including the frequency of changes in the sick children who participated in the study.

The aim of the study is to develop medical and social aspects of the occurrence of dentofacial anomalies and deformities in children of different ages and a new approach to their primary prevention [2].

Materials and Methods

Scientific studies of 801 sick children under the age of 18 diagnosed with dentofacial anomalies and deformities were used as clinical material.

Of the 801 examined sick children, 361 (45.1±1.8%) were boys and 440 (54.9±1.8%) were girls.

Result and Discussion

Depending on the child's physical and mental development and the characteristics of the course of diseases, it was decided to interpret and analyze somatic and infectious diseases separately. It was established that the most frequent somatic diseases included otorhinolaryngological diseases (Table), which were found in 393 sick children (49.11±1.8%), followed by allergic diseases, which were diagnosed in 120 (15.0±0.7%) children [3].

Table 1. Prevalence of somatic diseases experienced by children with dentofacial anomalies and deformities

Diseases	Absolute Number	Relative Number (%)
Otorhinolaryngologicaldiseases	393	49,1±1,8
Allergicdiseases	120	15,0±0,7
Grade I-II anemia	50	6,2±0,9
Injuries (variousforms)	42	5,2±0,8
Endocrinologicaldiseases	34	4,2±0,7
Nervousdiseases	31	3,9±0,7
Measles	18	2,2±0,9
Musculoskeletaldisorders	8	1,0±0,4
Diseases of the gastrointestinal tract	4	0,5±0,2
Heart diseases	3	0,4±0,2
Kidneydiseases	2	0,2±0,2
Rheumatism	2	0,2±0,2

As seen from Table 1, the frequency of other somatic diseases was characterized by a significantly lower frequency of occurrence than the aforementioned pathologies ($P<0.05$). If anemia, endocrinological diseases, injuries, and nervous disorders occurred from 3.9±0.7% to 6.2±0.9%, then other specified pathologies occurred from 0.2±0.2% to 2.2±0.9%. The morbidity rate and disease incidence percentage did not differ significantly from the results of various researchers who studied other dental diseases; no specific patterns in the frequency of somatic diseases or features of dentofacial anomalies were identified, and all clinical studies were conducted during the remission period of these diseases [4].

In addition to somatic pathology, infectious diseases were identified in the sick children (Table No. 2).

Table 2. Frequency of infectious diseases in children diagnosed with dentofacial anomalies and deformities

Diseases	Absolute Number	Relative Number (%)
ARVI	443	55,3±1,8
Smallpox	108	13,5±1,2
Hepatitis A	53	6,4±0,9
Measles	37	4,6±0,7
Epidemicparotitis	7	0,9±0,3

As shown in Table 2, ARVI differed from other common infectious diseases by its high frequency (55.3±1.8%, n=443). Other diseases ranged from 0.5±0.3% to 13.5±1.2%. It should be noted that all infectious diseases were identified in a timely manner, treated adequately, and no complications remained.

When studying the vaccination data of these children (n=801) based on their medical documents, it was established that all vaccinations in the republican vaccination calendar were performed on time and in full, with the exception of some accidental cases. It has been established that the low frequency of infectious diseases in the examined children is inextricably linked to this condition [5].

To obtain a complete picture of morbidity, a comparison of the incidence rates of somatic and infectious diseases was conducted (Fig. 1). To ensure the adequacy of the results, only those diseases that occurred more frequently than 5.0% were included in the chart. Comparison showed that a total of 7 out of 12 somatic and 5 infectious diseases were above this barrier. It was recognized that these diseases occur in practically equal numbers, the coverage level of children was also low, and these cases may not be taken into account in the diagnosis and treatment of dentofacial anomalies and deformities [6].

Thus, when studying the diseases experienced by children with dentofacial anomalies and deformities, it was established that they suffered from a total of 12 somatic and 5 infectious diseases, among which ARVI (55.3%), otorhinolaryngological diseases (45.1%), allergic diseases (15.0%), chickenpox (13.5%), hepatitis A (6.4%), grade I-II anemia (6.2%), and various types of injuries (5.2%) were most common. It was believed that the low incidence of infectious diseases was related to the correct execution of vaccinations at the scheduled time [7]. It has been established that these somatic and infectious diseases have a degree of connection with the studied pathologies and practically do not have a negative impact on their course.

At the next stage of the study, the incidence of dentofacial system diseases, i.e., dental diseases, was assessed in these sick children (n=801) (Table 3).

Table 3. Frequency of dental diseases in children with dentofacial anomalies and deformities

Nosologicalunits	Absolute Number	Relative Number (%)
Chronicpulpitis	364	45,5±1,8
Periodontitis	134	16,7±1.3
Multiplecaries	100	12,5±1,2
Periostitis	19	2,4±0,5
Osteomyelitis (odontogenic)	2	0,2±0,2
Abscessesandphlegmons	2	0,2±0,2
Other	24	3,0±0,6
Unabletodetermine	156	19,5±1,4

It was established that the incidence of dental diseases was not inferior to the incidence of somatic and infectious diseases; only 19.5±1.4% of patients had no dental diseases at the time of the examination. Among these diseases, pulpitis (45.5±1.8%, n=364), periodontitis (16.7±1.3%, n=134), and multiple caries (12.5±1.2%, n=100) were leading. Periostitis, odontogenic osteomyelitis, abscesses, and phlegmons were observed in 0.2±2.4% of cases. This manifestation of the frequency of dental diseases showed their inseparable connection with dentofacial anomalies and deformities [8].

It was revealed that all these children (100.0%, n=801) were under the dispensary observation of pediatric dentists corresponding to their diseases, but in 62.4±1.7% of cases, the absence of a dentist at the educational institutions where they studied was shown as a notable case.

Thus, an analysis of dental diseases in children with dentofacial anomalies and deformities showed that only 156 (19.5%) children had no dental diseases, while all other children (87.5%) had these diseases diagnosed. Among them, pulpitis (45.5%), periodontitis (16.7%), and multiple caries (12.5%) were more common. The remaining dental diseases occurred within the range of 0.2-3.0%. It is noteworthy that these dental diseases were closely linked to the formation and development of dentofacial anomalies and deformities in children. All of these children (100.0%) were undergoing a clinical examination by a pediatric dentist.

Along with this, figures on the incidence of oral mucosal diseases (OBSH) in sick children were analyzed [9]. It was established that a total of 476 sick children (59.4±1.7%) exhibited no pathological signs of OBSH damage, while the remaining 40.6±1.7% (n=325) of children exhibited such diseases.

Table 4. Frequency of OPD diseases in children diagnosed with dentofacial anomalies and deformities

Nosologicalunits	Absolute Number	Relative Number (%)
Gingivitis	236	29,5±1,6
Stomatitis	49	6,1±0,8
Candidosis	28	3,5±0,7
Other	12	1,5±0,4
Unspecified	476	59,4±1,7

Among OBSH diseases, gingivitis (29.5±1.6%, n=236) led, followed by stomatitis (6.1±0.8%, n=49), and candidiasis (3.5±0.7%, n=28). The diagnosis of candidiasis was conducted as a result of mycological examination alongside clinical examination. The causative agent of OBSHD candidiasis was Candida albicans, which belongs to the yeast fungus genus Candida (n=28), and Non-albicans were not identified [10]. It was recognized that OBSH diseases were significantly less commonly identified compared to dental diseases: 325 (40.6%) sick children versus 645 (80.5%) respectively (P<0.001.

Thus, in children diagnosed with dentofacial anomalies and deformities from OBSH diseases, gingivitis (29.5%), stomatitis (6.1%), and candidiasis (3.5%) were primarily found; Candida albicans was the causative agent of candidiasis, while OBSH dental diseases were diagnosed relatively less reliably—correspondingly 40.6% versus 80.5% (p<0.001) or in a ratio of 1:1.98. A link has been established between diseases and the studied pathology, which is explained by the complexity and duration of the treatment process.

Other conditions related to the oral cavity include development of the dentofacial system and assessment of the bite. 46.9±1.8% (n=376) of the examined sick children did not have their milk teeth replaced in a timely manner - 53.1±1.8% (n=415), respectively, such a state was not observed [11]. Pathological bite was observed in 54.3±1.8% of those examined (n=435); both identified conditions were closely linked to the development of the primary disease diagnosed in the sick children.

Along with determining the incidence of diseases among sick children, children's complaints regarding dentofacial anomalies and throat deformities were studied, and the results were analyzed. It was established that aesthetic complaints were more common in sick children, with 99.1±0.3% (n=794) complaining about this condition (Fig. 3). Additionally, morphological complaints were identified in 680 (84.9±1.3%) of the examined sick children, while the number of complaints regarding functional status was 101 (12.6±1.2%).

The majority of complaints regarding aesthetic deficiencies (99.1±0.3%) were explained by their severity, inability to behave freely among peers, inability to smile correctly, and, in general, inability to behave freely in society and integrate freely into the collective [12], [13]. A relatively small number of morphological complaints (84.9±1.3%) is associated with the partial adaptation of some children to their condition. A lower number of functional complaints (12.6±1.2%) is explained by the fact that part of the dentofacial system's functions is partially performed through compensatory-adaptive mechanisms in

the children's bodies. The aforementioned complaints form the basis of the studied pathology, and the treatment procedures were based on their elimination.

If we specify the presented complaints, we can see that the most frequent complaint was breathing through the mouth - only 398 children (49.7±1.6%) (Table. The next place is occupied by infantile complaints of swallowing, which occurred in 25.3±1.3% (n=203) of cases; frequently encountered complaints also include slow chewing (24.6±1.%, n=197). One of the complaints specific to this pathology is speech impairment. This complaint was expressed by 193 (24.1±1.1%) sick children and was clinically confirmed during the study [14], [15]. These complaints were characterized by both frequency and specificity for the pathologies under study, as well as ease of clinical confirmation.

The complaints indicated by the sick children, which belong to the aforementioned series of specific complaints, were also characterized by a high number of lips not joining (16.6±0.7%, n=133) and the habitual shifting of the lower jaw to the side (14.7±0.2%, n=118). It was established that a total of 14 complaints were filed 1,575 times, which means that for every

Table 5. Indicators of detection of complaints expressed by children with dentofacial anomalies and deformities

Complaints	Absolute Number	Relative Number (%)
Breathingthroughmouth	398	49,7±1,6
Infantileswallowing	203	25,3±1,2
Slowchewing	197	24,6±1,1
Speechdisorder	193	24,2±1,1
Non-attachmentoflips	133	16,6±0,7
Habitual forward displacement of the lower jaw	133	16,6±0,7
Habitual displacement of lower jaw to the side	118	14,7±0,2
Hereditaryfactor	113	14,1±0,4
Bruxism	19	2,4±0,1
He sucked his nipple for a long time	18	2,3±0,3
Violationof VNCHS functions	16	2,0±0,3
Earlymolarmilkteeth	12	1,5±0,2
Unilateral congenital anomalies of upper lip	11	1,4±0,1
Weft-shapedtooth	11	1,4±0,1

Conclusion

Thus, children with confirmed dentofacial anomalies and deformities submitted a total of 14 complaints, accounting for 1.98 per patient child. The most frequent complaints were complaints such as breathing through the mouth, infantile swallowing, slow chewing, speech impairment, and non-fusion of the lips, which occurred in 16.6-49.79% of cases; all complaints were clinically confirmed. It was established that the groups of aesthetic, morphological, and functional complaints, which include these complaints, occurred in 99.1%, 84.9%, and 12.6% of cases, respectively. All of this showed that when observing the studied diseases, complaints were specific to the nosological units, and identifying complaints through questioning and its clinical confirmation remains one of the important aspects of clinical diagnosis.

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