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## COMPARATIVE ANALYSIS OF MAXILLOFACIAL AREA DISEASES, WHICH LED TO TEMPORARY DISABILITY IN DENTAL MEDICAL ORGANIZATIONS

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In this article the authors studied the temporary disability cases in patients with the maxillofacial area diseases that received treatment and rehabilitation in the dental medical organizations in the period of 2007-2016.

**Methods.** The groups of the maxillofacial area diseases that lead to restriction and/or loss of capacity for work of the adult population in the Republic of Tatarstan: inflammatory (of odontogenic and neodontogenic genesis), traumatic, benign and malignant lesions, secondary jaw edentulism (full or partial), as well as tooth eruption diseases.

**Results.** The odontogenic inflammatory processes made the largest share in the causes of temporary disability in patients of dental medical organizations (66.1% of cases), the injuries took a second place (13.9%), the secondary jaw edentulism observed in 7.4% of cases took the third place.

**Conclusions.** The authors found that during the period under study, the statistically significant changes in the duration of temporary disability cases with odontogenic inflammatory processes, tooth eruption diseases, secondary jaw edentulism, injuries and neoplasms were noted. The analysis showed statistically significant differences in the structure of temporary disability cases by nosological groups, depending on sex, age and year of observation.

**Keywords:** stomatology, dental medical organization, treatment and rehabilitation of patients, examination of temporary disability, maxillofacial area diseases.

**Introduction.** The examination of temporary disability (ETD) is a type of medical activity aimed at assessing the patient's health status, the quality and effectiveness of the treatment, the possibility of professional activities, determining the timing of temporary disability [3]. The examination of temporary disability in the Russian Federation is regulated by the following orders: On approval of Procedure for Issuing Sheets of Disability No. 624H dated June 29, 2011; On Introduction of Changes in Procedure for Issuing Sheets of Disability No. 31H dated January 24, 2012; On Approval of Procedure for Examination of Temporary Disability No. 625H dated August 23, 2016; On Introduction of Form for Registration of Clinical and Expert Work in Treatment and Prevention Institutions No. 154 dated May 21, 2002. Among the nosologies with temporary disability, the digestive system diseases occupy the sixth place after the respiratory and circulatory organ diseases, injuries and poisonings, and

musculoskeletal system diseases [1,2]. When appealing to a dental medical organization, the patient is given a temporary sheet of disability based on the patient's testimony, the duration of which is determined by the time of treatment and the patient rehabilitation for a full return to the work process. Many authors in their studies assert that the case of temporary or total disability with the disease of any organs and systems of the body leads to the patient's somatic and mental imbalance [4,5,6]. The person of working age: women - up to 55 years, men - up to 60 years makes the main category of patients seeking medical dental care. Most patients almost always present a temporary sheet of disability to the social insurance fund for the payment of corresponding allowance.

Duration of disability by a patient may depend on various factors, such as the type and course of the maxillofacial area disease, seasonality, individual characteristics of the organism. The estimated periods of temporary disability for digestive diseases (class XI according to ICD-10) are established relative to the group of the maxillofacial area diseases in the Russian Federation. However, we have not revealed any data on the effect of various factors on the duration of temporary disability in the patient with maxillofacial area disease during treatment in dental medical organizations.

The purpose of the study is to analyze temporary disability cases in the maxillofacial area diseases in dental practice over a period of 10 years.

**Material and methods.** The temporary disability cases, established by the den-

tal medical organizations of the Republic of Tatarstan served as a source of the information was (analysis of accounting and reporting forms 16-BH, 036/y, 035/y, 043/y for the period 2007-2016). The material of the study was subjected to statistical processing using the methods of parametric and nonparametric analysis in accordance with the results of testing the compared populations for the normal distribution. The accumulation, updating, systematization of the initial information and visualization of the obtained results were carried out in Microsoft Office Excel 2016. The statistical analysis was carried out using the IBM SPSS Statistics 23.

**Results and discussion.** The maxillofacial area is an important element of the anatomical and functional unity of the human body. Taking into account the peculiarities of the structure of soft tissues, maxillofacial bones, their blood supply and innervation, we have defined the groups of the maxillofacial area diseases that lead to the limitation and/or loss of the working capacity of the adult population: inflammatory (of odontogenic and non-dontogenous genesis), traumatic, benign and malignant lesions, secondary jaw edentulism (full or partial), as well as tooth eruption diseases. When appealing to a dental medical organization, as a rule, in most cases, the sheet of disability is issued by a dentist-surgeon, somewhat less often by a dentist-therapist.

The total number of temporary disability cases studied by us in dental medical organizations of the Republic of Tatarstan for 2007-2016 totaled 12,891 units, which we accepted as the general population. The statistical analysis was carried out by

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the method of a sample, in which, based on mathematical calculations, the number was 5,204 cases. The distribution of temporary disability cases in the Republic of Tatarstan by years is shown in Figure 1.

According to the presented figure, the greatest number of temporary disability cases due to dental diseases was registered in 2013 (904 cases), the smallest - in 2009 (253 cases). At this stage of our study, we estimated the time dependence of the incidence of temporary disability from various factors, including the nosological group of the disease, sex, age, and doctor's experience.

The results of the comparison of the duration of temporary disability cases, depending on the nosological group to which the underlying disease was related, are presented in Table 1.

According to the study, the duration of temporary disability cases in maxillofacial area diseases had statistically significant differences, depending on the nosological group to which the underlying disease belonged ( $p<0.001$ ). The mean duration of the case was greatest in patients with abnormalities of maxillofacial area development and with injuries, amounting to  $12.18\pm1.26$  and  $11.79\pm0.36$  days, respectively. The lowest values were taken in the case of odontogenic inflammatory processes in the maxillofacial area and tooth eruption diseases ( $5.61\pm0.08$  and  $6.13\pm0.35$  days, respectively).

Comparison of the duration of temporary disability cases corresponding to certain nosological groups was also performed in dynamics. The following diagram was obtained for the group of odontogenic inflammatory processes (Fig. 2).

In accordance with the results of a single-factor analysis of variance, the statistically significant differences in the duration of cases of odontogenic inflammatory processes in dynamics over 10 years were established ( $p<0.001$ ). During the study period, there was a significant increase in the average from 2008 to 2013 from 4.88 to 6.47 days. In 2015, the average duration of cases fell sharply to 5.29 days, and in 2016 it fell to 5.05 days.

When comparing the duration of cases of temporary disability caused by tooth eruption diseases, the data presented in Figure 3 were obtained in the dynamics.

Based on the data obtained, the statistically significant differences in the duration of cases of tooth eruption diseases, depending on the year of observation, were noted ( $p=0.006$ ). At the same time, the average duration of cases took the maximum values in 2009 and 2012 (8.0 and 9.36 days, respectively), in the re-

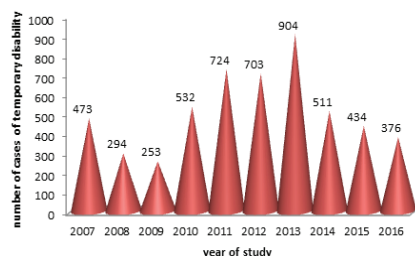
maining years the fluctuations of the indicator were insignificant, ranging from 4.68 days in 2010 to 6.54 days in 2008.

The results of the comparison of the duration of cases of temporary disability due to secondary jaw edentulism in the dynamics from 2009 to 2016 (in 2007-2008 there was a small number of cases of this pathology) are shown in Figure 4.

The analysis made it possible to reveal statistically significant differences in the duration of cases of temporary disability at secondary jaw edentulism in dynamics ( $p<0.001$ ). When comparing the values of the indicator, the significantly different average duration of the case in 2015 came under our notice, which was 17.29 days, which was almost twice as high as the next largest indicator of 2013, equal to 9.36 days. We associate the growth of this indicator with an insignificant number of cases of temporary disability at jaw edentulism in the structure of the maxillofacial area diseases leading to the occurrence of the case of temporary loss of capacity for work by the patient, hence, in this case, the median fluctuation was minimal.

The average levels of the duration of cases of temporary disability caused by maxillofacial area injuries were compared in dynamics in Figure 5.

As in the case of other studied diseases, the changes in the duration of cases of temporary disability due to maxillofacial area injuries in 2007-2016 were



Distribution of temporary disability cases in a sample during the period under study

statistically significant ( $p<0.001$ ). For this indicator, a gradual decrease from 14.89 to 7.88 days, observed from 2008 to 2015, was characteristic. However, in 2016 the average duration of the case increased significantly, reaching 15.92 days. The growth of this indicator we associate with the increase of cases of joint treatment and rehabilitation of patients with the maxillofacial area injuries in the dental medical organization in 2016 and the conditions of the maxillofacial department of the profile hospital.

The next nosological group, for which the dynamics of the average duration of cases of temporary disability was studied, were the maxillofacial area neoplasms. In this section of our study, we consider the maxillofacial area neoplasms of only benign genesis, treatment and rehabilitation of these patients was performed in the dental medical organizations or the maxillofacial department of the profile hospital according to indications. The resulting graph is shown in Figure 6.

In accordance with the data obtained, the average duration of the case was characterized by statistically significant positive dynamics, increasing during the study period from 4 to 17 days ( $p<0.001$ ).

According to the results of the analysis, the differences in the duration of cases of temporary disability with non-dental inflammatory diseases and maxillofacial anomalies, depending on the year of observation, were statistically insignificant ( $p=0.125$  and  $0.257$ , respectively).

In the study, we also revealed the effect of the patient's sex on the duration of temporary disability in various nosologies of maxillofacial area diseases. The results are shown in Table 2.

According to the presented Table, the statistically significant differences in the duration of cases of temporary disability, depending on sex were noted in most nosological groups. The index took significantly higher values among men in

Table 1

Comparison of duration of temporary disability cases, depending on affiliation of disease to particular nosological group

Nosological groups	Duration of cases, days
	M±m
Odontogenic inflammatory processes of maxillofacial area	5.61±0.08
Tooth eruption diseases	6.13±0.35
Secondary jaw edentulism	8.57±0.36
Maxillofacial area injuries	11.79±0.36
Neodontogenic inflammatory processes of maxillofacial area	7.61±0.46
Maxillofacial area neoplasms	7.83±0.63
Anomalies in maxillofacial area development	12.18±1.26
Polypathia	8.15±0.8

Table 2

The duration of cases of temporary disability, depending on patients' sex of in nosological groups of maxillofacial area diseases

Nosological group	Duration of cases of temporary disability (M±m)		p
	Men	Women	
Odontogenic inflammatory processes of maxillofacial area	5.88±0.15	5.52±0.09	0.039*
Tooth eruption diseases	7.04±1.05	5.88±0.32	0.296
Secondary jaw edentulism	10.77±0.79	7.38±0.3	<0.001*
Maxillofacial area injuries	13.37±0.54	9.07±0.43	<0.001*
Neodontogenic inflammatory processes of maxillofacial area	8.17±0.79	6.36±0.46	0.051
Maxillofacial area neoplasms	8.89±0.97	5.89±0.44	0.007*
Anomalies in maxillofacial area development	15.07±2.01	9.82±1.58	0.043*
Polypathia	10.81±2.04	6.92±0.76	0.083

\* - differences in indicators are statistically significant ( $p < 0.05$ )

case of odontogenic inflammatory processes in the maxillofacial area ( $p=0.039$ ), secondary jaw edentulism ( $p<0.001$ ), injuries ( $p<0.001$ ), neoplasms ( $p=0.007$ ), developmental abnormalities ( $p=0.007$ ). The average duration of temporary incapacity in patients with non-pediatric inflammatory processes and associated diseases was also increased in men, the significance level was very close to the critical level ( $p=0.051$  and  $p=0.083$ , respectively).

Another factor, whose influence on the nosological structure of cases of temporary disability was studied, was the patients' age. As the analysis showed, the patients' age had statistically significant differences depending on the nosological group ( $p<0.001$ ). The lowest values of the median age were observed in tooth eruption diseases (29 years of age), injuries and developmental anomalies (32

and 33 years of age, respectively). Later, other causes were secondary jaw edentulism (38 years of age) and odontogenic inflammatory processes of maxillofacial area (37 years of age).

Conclusion. Taking into account the peculiarities of the structure of soft tissues, maxillofacial bones, their blood supply and innervation, we have identified groups of maxillofacial area diseases that lead to the limitation and/or loss of capacity for work of the adult population in the Republic of Tatarstan: inflammatory (of odontogenic and neodontogenic genesis), traumatic, benign and malignant lesions, secondary jaw edentulism (full or partial), as well as tooth eruption diseases. We established that during the study period, the statistically significant changes in the duration of cases of temporary disability due to odontogenic inflammatory processes in the maxillofacial area,

tooth eruption diseases, secondary jaw edentulism, injuries and neoplasms were noted. The statistically significant differences in the structure of cases of temporary disability on nosological groups of maxillofacial area diseases were established depending on sex, age, and year of observation.

*There is no conflict of interest.*

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