

**Results.** The study and comparative analysis of the character and degree of the TMJ dysfunction patients psychological manifestations after COVID 19, using the author's questionnaire, showed that intensification (or origination) of pain in the TMJ region after COVID 19 was severely painful for 6 (25%) patients; deterioration of the TMJ dysfunction symptoms after COVID 19 was observed in 19 (79.2%) patients; increased cracking in the TMJ region after COVID 19 was noted by 8 (33.3%) patients; considerable intensification of pain and tinnitus after COVID 19 appeared in 2 (8.3%) patients; origination (intensification) of headache after COVID 19 appeared considerably in 8 (33.3%) patients; with not so severe reporting in 4 (16.6%) respondents, about 4 (16.6%) of the patients complain of great chewing and neck muscles pain sensation intensifications. Eleven patients (45.8%) reported about new symptoms which they relate to the TMJ dysfunction, after their COVID 19 recovery; 2 (8.3%) respondents are less certain about the relation between the new symptoms and COVID 19; 3 (12.5%) respondents aren't certain about this and 8 (33.3%) people deny the fact. The highest anxiety level after the COVID 19 recovery has been stated by 12 (50%) patients, it is less expressed in 4 (16.6%) respondents, insignificant changes are characteristic for 4 (16.6%) patients, and absent changes are noted in 4 (16.6%).

**Conclusions.** As a result of the study, the effect of the COVID 19 onto the patient's psychological status has been established. The authors have noted increased anxiety in 15 (62.5%) patients after the COVID 19 recovery. Having analyzed the basic and accompanying clinical symptoms and complaints of the patients after the COVID 19 recovery, the authors conclude that the most complaints refer to intensification (recurrence) of the pain phenomenon in both TMJ regions. This symptom was experienced by 11 (45.8%) patients.

The conducted study provides for defining psychological targets of the TMJ dysfunction patients after their COVID 19 recovery and managing their psychological assistance on all treatment stages.

*Kotelban A.V.*

## **ASSESSMENT OF MICROBIAL RISK FACTOR OF DENTAL CARIES IN CHILDREN**

Bukovynian State Medical University, Chernivtsi, Ukraine

**The aim of the study** is to assess the microbial risk factor for caries in temporary teeth by determining the titer of the main cariogenic microorganisms in the oral cavity.

**Materials and methods.** We examined 73 children aged 6 years, who live in Bukovina. To determine the level of dental caries intensity, the RIC index was calculated (Leus PA, 2009). The titer of cariogenic microflora was determined by the CRT bacteria kit (Ivoclar Vivadent, Liechtenstein) according to the manufacturer's instructions. The degree of probability of the obtained results was statistically assessed.

**Results of the research.** The study has shown that the intensity of caries in temporary teeth is  $3.78 \pm 0.32$  that corresponds to the average level. When determining the concentrations of *Streptococcus mutans* and *Lactobacillus salivarius*, we found a probable increase in the titer of colonies in children with different levels of caries intensity compared to healthy children with normal oral status. At a low level of caries intensity in the vast majority (55.55%) of children we found <104 CFU of streptococci. For the average level of caries intensity, the most characteristic is the number of colonies of microorganisms with a concentration 105-106 CFU in 57.14% of the examined children. In the case of a high level of caries intensity, >106 CFU of streptococci were sown in 46.67% of children, and 105 - 106 CFU of streptococci in 33.33% of children. Regarding lactobacilli, the low level of intensity of dental caries is characterized by the concentration <104 CFU in 44.44% of the examined. Under the conditions of medium level, half of children were diagnosed with <104 CFU lactobacilli; high level was detected in the vast majority of children (53.33%), 104 - 105 CFU lactobacilli.

**Conclusions.** Thus, we found a high concentration of major cariogenic microorganisms in children with caries of temporary teeth compared to healthy children. As the level of caries intensity increases, there is a probable increase in the titer of streptococci and lactobacilli.

*Kuz H.M., Teslenko O.I., Yerys L.B., Balia H.M., Kuz V.S.*

## **TREATMENT OUTCOMES OF TOOTHLESS PATIENTS WITH DENTURES MADE OF THERMOPLASTIC BASE MATERIAL "DEFLEX ACRYLATO"**

Poltava State Medical University, Poltava, Ukraine

**The study aims to determine** various functional tests to assess the outcomes of treating toothless patients with dentures made of "Deflex Acrylato" thermoplastic material.

**Materials and methods.** We made 32 complete removable dentures for 16 patients from thermoplastic material based on "Deflex Acrylato" polymethyl methacrylate. The quality of all constructions was assessed using the "BOFSAS" objective-subjective test, biopotential of masticatory muscles was determined with electromyography and masticatory efficiency was measured using I.S. Rubynov's method.

**Results of the research.** The following results were obtained. Performing the "BOFSAS" subjective-objective test proved that most dentures were of good quality, only one correction when installing the denture was required to complete adaptation, and only two dentures needed two or three corrections. Patients' adaptation time to new dentures averaged  $18.00 \pm 0.35$  days.

Electromyographic examinations of the masticatory muscles were performed in patients both prior to treatment and following one month, six months and a year of denture use.

The level of the excitatory processes in the masticatory muscles is quite high and ranges up to  $641.58 \pm 10.01$   $\mu$ V with volitional compression of the jaws in the control group. A similar correlation between the frequency and the amplitude of biocurrents is observed when performing a random chewing sample. The analysis of temporal indices of electromyograms did not reveal a significant difference in the length of the individual phases of activity and rest. It is evidenced by the numerical value of the "K" coefficient, which is close to one in people with intact dentitions.

The compression amplitude decreased to  $130 \pm 6.5$   $\mu$ V in voluntary compression and to  $250 \pm 10.7$   $\mu$ V in random chewing in patients before using new dentures (with old dentures). It differs significantly from normal. The value of the "K" coefficient has doubled and amounted to  $2.44 \pm 0.09$ . It is worth noting that its value should be as close as possible to one.

The compression amplitude increased to  $293 \pm 10.9$   $\mu$ V during voluntary compression and to  $314 \pm 19.3$   $\mu$ V during random chewing after one month of denture use. The value of the "K" coefficient decreased to  $1.29 \pm 0.02$  (normally it should be as close as possible to one).

The compression amplitude compared to the same indicator before the prosthetics has improved and is  $515 \pm 6.2$   $\mu$ V in voluntary compression and  $490 \pm 11.6$   $\mu$ V in random chewing in patients who used dentures for 6 months. The "K" coefficient decreases slightly and is  $1.18 \pm 0.03$ .

The amplitude of volitional compression is  $605 \pm 11.4$   $\mu$ V, which is close to normal after 1 year of using the dentures. The amplitude of chewing is also close to normal and is  $585 \pm 9.1$   $\mu$ V. The value of the "K" coefficient decreased significantly compared to the results obtained before using and were  $1.12 \pm 0.04$ .

The following data were obtained after evaluating the effectiveness of masticatory function restoration using a masticatory sample: the weight of the residue was 0.05-0.08 g. The time that patients wasted on chewing the nut in 1 month after they received dentures is  $28.15 \pm 0.38$  sec.,  $25.55 \pm 0.51$  sec. after 6 months of denture use, and  $20.82 \pm 0.75$  sec after 1 year.

**Conclusion.** We can say that the use of "Deflex Acrylato" basic thermoplastic material allows to achieve better fixation and stabilization of complete removable dentures. It is subjectively confirmed by the "BOFSAS" test, and objectively by electromyographic data and indicators of masticatory efficiency recovery using I.S. Rubynov's method. Based on this, we can conclude that the adaptation to such dentures takes place in a short time and does not need any corrections.

*Matvieienko L.M., Matvieienko R.Y.*

## THE RESULTS OF STUDYING MINERAL DENSITY AND COMPOSITION OF RATS' MANDIBLES IN EXPERIMENTAL MODELS OF GENERALIZED PERIODONTITIS

Dnipro State Medical University, Dnipro, Ukraine

The most severe and difficult to treat symptoms of generalized periodontitis associated with diabetes mellitus are changes in bone tissue. Specific osteotropic therapy in the complex treatment of the disease aims to normalize the "bone resorption – bone formation" balance. Strontium is promising for increasing osteogenic activity.

**The aim of the research was to conduct** a comparative study of the mineral density and chemical composition of the mandibular bone tissue in rats in the modeling of generalized periodontitis, which develops in the setting of metabolic disorders in type 2 diabetes mellitus, and after additional use of strontium ranelate.

**Materials and methods.** The study was carried out on 24 white male Wistar rats weighing 230-250 g, divided into three groups of 8 (streptozocin and nicotinamide were administered in group I; additionally, penicillamine and strontium ranelate were given in group II and III respectively) and 6 intact rats as a control. The bone mineral density of the rats' mandibles was studied using computer tomography method. The content of chemical elements in the bone samples was determined using the method of atomic emission spectrometry with inductively coupled plasma.

**Results.** According to computer tomography data, the average values of the mineral density in the control group are  $1450.0 \pm 125.0$  HU, in group I –  $1320.0 \pm 120.0$  HU ( $p > 0.05$ ), in group II –  $1100.0 \pm 110.0$  HU ( $p < 0.05$ ), in group III –  $1400.0 \pm 137.0$  HU ( $p > 0.05$ ). Thus, the most pronounced decrease in mineral density is observed with the combined use of nicotinamide, streptozotocin and penicillamine, while strontium ranelate helps to normalize this indicator. According to atomic emission spectrometry, the mineralization index, that is, the ratio of calcium to phosphorus, was 1.14 in the control group, 1.05 – in group I, 1.0 – in group II and 1.26 – in group III. The strontium content in the samples of group III were almost twice as high as the control values ( $p < 0.001$ ) and significantly lower than in the samples of groups I and II ( $p < 0.05$ ). An increase in the strontium content led to a decrease in the content of other elements, which is explained by the competitive substitution in apatite crystals.