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CD68+ AND CD163+ MACROPHAGES IN PERIODONTITIS AND NORMAL SULCULAR GINGIVA RESEMBLE MUCOSA ASSOCIATED LYMPHOID TISSUE

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An inflammatory infiltrate subjacent to the junctional gingival epithelium always presents in clinically healthy gingiva. From the other hand, loss of periodontal tissue support due to inflammation is the primary feature of periodontitis and it seems that both macrophages M1 and M2 contribute to the pathogenesis. The aim of the study was to investigate changes of the CD68+ and the CD163+ macrophages in periodontitis compared with clinically healthy gums by immunohistochemical approach and histopathology.

Material and Methods. 29 individuals were involved in the research, including 14 healthy volunteers and 15 chronic periodontitis patients, divided into the periodontal health group (H group) and periodontitis group (P group). The diagnosis of periodontitis was based on the Classification of Periodontal and Peri-implant Diseases and Conditions 2017. This study was approved by the human subjects ethics board of Ethics Commission of Ukrainian Medical Stomatological Academy (No. 177b, from 27.11.2019) and was conducted in accordance with the Helsinki Declaration of 1975, as revised in 2013. All individuals were provided with written informed consents when enrolling in the study.

For immunohistochemical study of macrophages gingival biopsy was conducted before treatment of periodontitis patients, and in the H group, gingival tissues were collected during tooth extractions for orthodontic reasons at periodontally healthy sites.

M1 macrophages were identified among CD68+ cells and M2 – as CD163+, and their densities were calculated as numbers on maximal infiltrated areas $10\,000\ \mu\text{m}^2$.

Results. In H group density of CD68+ cells and CD163+ were 5.8 ± 4.8 and 6.7 ± 5.8 , correspondingly. In P group densities were presented with 5.6 ± 4.1 and 3.4 ± 2.6 , correspondingly. In P group cells infiltration was observed along sulcular epithelium similar to clinically health gingiva. CD68+ and CD163+ cells commonly localized in cells infiltrates, also CD163+ cells formed a similarity of border around infiltrates and density of CD68+ cells predominates over CD163+ in infiltrative areas significantly (Wilcoxon matched-pairs signed rank test, $p=0.0001$). Between groups comparisons revealed CD163+ cells superiority in P group, compared with H group (Mann Whitney test, $p<0.0001$). Morphological features in H group and P group have similarity as the sequence of lymphocytes and plasma cells regular representation below the sulcular epithelium, in contrast to ordinary areas of infiltration.

Conclusions. The density of CD163+ cells decreases significant in periodontitis and confirmed the paradigm of M2 predomination at physiological conditions. Features of organization of inflammatory foci suggests that macrophages can play essential role in inducing of associated lymphoid tissues which associated with sulcular epithelium and possible has a pathogenic role analogical to inducible bronchus-associated lymphoid tissue or inducible skin-associated lymphoid tissue.

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PECULIARITIES OF PSYCHOLOGICAL CHANGES IN PATIENTS WITH TMJ DISORDER IN THE COVID-19 REHABILITATION PERIOD

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Introduction. The temporo-mandibular joint dysfunction (TMJ) represents the most common facial-mandibular pathology both in Ukraine and abroad, which makes up from 20 to 75% of general stomatological pathologies. During the COVID 19 pandemics, psychological strain has increased, together with the society anxiety, which is reflected in general health of people, particularly in the TMJ pathologies. The range of new symptoms and exacerbations of the TMJ manifestations has expanded after COVID-19 recoveries.

Purpose of the study. To study and hold the comparative analysis of the psychological manifestations character and degree, when observed with the TMJ patients in their rehabilitation period after COVID 19, by analysis of psychological screening tests.

Materials and methods. There have been examined a total of 274 people (193 females and 81 males), aged 18-65 years, diagnosed with the TMJ dysfunction. The samples, excluded from the representative contingent, are those patients who were being treated for the TMJ dysfunction for 6-12 months and who from August 2020 till November 2020 were being ill with COVID 19. The study includes the patients with mild and moderate severity. There have been examined 24 patients with the TMJ dysfunction, with clinical dysfunction index ranging within $h = 6-15$ and pain index within $= 2-5$. In order to assess the psychological status of the patients the authors use the personal author questionnaire, Giessen subjective complaints list, Toronto Alexithymia Scale, modified 10- point subjective pain scale FPS- R (based on Bayers). To compare the patient groups, the authors used a non-parameter Student test, with the critical significance level $p=0.01$.

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.

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ASSESSMENT OF MICROBIAL RISK FACTOR OF DENTAL CARIES IN CHILDREN

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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 ± 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.

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

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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.