Modern Diagnostics of the Oral Mucosa in Patients With Covid-19

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Summary,

Coronavirus disease (COVID-19), caused by the SARS-CoV-2 virus, which shocked the whole world with a global pandemic, challenged all of humanity, and reminded that there is still a threat of new, not fully understood strains of infections, including viruses that not going to retreat without a trace. Modern healthcare, the whole world has directed all available forces to the study, fight and prevention of infection with the SARS-CoV-2 virus, and as practice has shown, this problem covers all branches of medicine, and damage to organs and systems is mainly diffuse, multi-organ.

Keywords: *coronavirus infection, saliva lysocin, microbiocenosis of the oral cavity, neurostomatological syndromes, neurological symptoms, pathology of the salivary glands, herpes, stomatitis, pathology of the microflora of the oral cavity, candidiasis (thrush) of the oral cavity, gingivitis, periodontitis, therapy of coronavirus due to the pathology of the oral cavity.*

Relevance. The ability to spread through oral secretions, including saliva spray, and as stated - "The cells of the salivary glands, tongue and tonsils carry the most RNA associated with proteins that the SARS-CoV-2 virus needs to infect cells." At the same time, an isolated lesion of the oral mucosa is not excluded, which, together with saliva, are objects of high risk for invasion of the SARS-CoV-2 virus, and dentists become a high-risk group for developing morbidity. Covitology experts confirm that the oral cavity can play a fatal role in transporting the SARS-CoV-2 virus deep into the body - into the lungs or digestive system through saliva containing the virus from infected oral cavity cells.

Angiotensin converting enzyme 2 (ACE2) is the main host cell receptor for SARS-CoV-2 and plays a critical role in the introduction of the virus into the cell (Zhou et al., 2020). Laboratory results have proven that ACE2 is highly expressed on oral mucosal epithelial cells, which are at high risk of SARS-CoV-2 infection (Xu et

al., 2020). Because many viruses, including SARS-CoV-2, can be detected in saliva (Kaczor-Urbanowicz et al., 2017; To et al., 2020), there is no risk of transmitting viruses, especially those that cause respiratory infections, through saliva. negligible in the dental clinic (Meng, Hua, & Bian, 2020). Oral lesions, loss of taste and smell, neurological signs in the form of headaches, prosopalgia, deep asthenia, anxiety, phobic and depressive disorders, cognitive deficits are common clinical symptoms in the clinic of coronavirus infection [14.16.18.20.21.22.23].

The disease was first identified as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The coronavirus is characterized by the presence of a beta-linked RNA protein, including SARS-CoV and SARS-CoV-2, which the pandemic has shown to be deadly viruses that cause respiratory distress syndrome (RDS). According to the literature and according to practical medicine, in 1960, six types of coronavirus were identified that cause diseases in humans (SARS-CoV; MERS-CoV; SARS-CoV-2; Bat-CoV; Bat-CoV and RaTG13).

Target cells for SARS-CoV infection include ACE2 positive cells/keratin epithelial cells in the salivary gland duct and other cells in the lung such as ACE2 positive cells/keratin alveolar epithelial cells, in which salivary gland epithelial cells are possibly infected in vivo after virus penetration. The list of coronavirus symptoms is updated annually or, we can say confidently, at the time of each outbreak, infection of the oral cavity, neurological symptoms, damage to the tissues of the salivary glands, and severe forms of complications are no exception. To date, there are many scientific studies that have proven a wide range of non-specific lesions of the oral mucosa and subsequent neurological complications, degeneration of the oral mucosa, of various etiologies, however, the formation, diagnosis, prevention, and treatment of such diseases against the background of the SARS virus have not been sufficiently studied. -CoV-2 [1.3.5.7.9.11].

Pathogenetic aspects, invasion pathways, the principle of biological attack, issues of diagnosing lesions of the oral cavity, the pathogenesis of possible neurological complications, the prognosis of neurostomatological manifestations, dental care and preventive measures that prevent the aggression of the SARS-CoV-2 virus in the oral region are still open. The study of similar and other issues related to local immunity of the oral cavity, setting up and assistance for proper management, oral hygiene, the choice of drugs for the treatment of post-covid dental and neurological complications will contribute to the timely detection, prognosis, prevention of complications and diffuse spread of SARS-CoV-2 on organs and tissues [2.4.6.8.10.12.14].

Symptoms of coronavirus that appear on days 2-14 of infection (cough, aches and

pains, high fever, loss of taste and smell). Despite the short existence of coronavirus infection, and the study of the ways in which its pathogen spreads, there is still no unequivocal evidence of preventing COVID-19 through personal hygiene and oral hygiene. However, maintaining proper hygiene can reduce the incidence of damage to oral structures, the development of neurological complications and neurodental syndromes. There are no specific characteristics of the symptoms that occur in the oral cavity due to the continued evolution of the virus. In addition, due to the weakening of the protective functions of the body, dental problems on their own can serve as a risk factor for infection, and it would be correct to include a dental examination with COVID-19 in the list of necessary studies [15.17.19.20.21.22.23].

In addition, those infected may develop a taste disorder, fungus, candidiasis and other pathological conditions in the mouth. Russian experts believe that such symptoms can be observed as secondary manifestations of infection, as well as side effects from taking medications, in particular antibiotics (2021).

Лаборатории оральной гистопатологии факультета здравоохранения Brazilian University revealed lesions of the oral mucosa in an elderly man who was admitted to the hospital with COVID-19, in addition to loss of taste on the 24th day of hospitalization, yellow ulcers in the mouth, similar to herpetic ones, as well as deep cracks and a specific white plaque on the back of the tongue developed (2021). Often, those infected develop secondary conditions caused by the general effect of the infection on the body, such as dry mouth. According to Irina Makeeva, Head of the Department of Therapeutic Dentistry of the First Moscow State Medical University. THEM. Sechenov, secondary lesions of the oral cavity during coronavirus infection are often observed in diabetes mellitus, due to the action of drugs used to treat this disease (diuretics, blood pressure lowering, antiallergic, antibiotics) (2020).

Lymphadenitis for no apparent reason (2021), ulcers may occur on the body and on the oral mucosa, which have never happened before, the disappearance of taste sensitivity (eating is felt like “chewing soap, cotton wool” (2019)). The Director General of the German Dental Implant Center Maret Khashieva (2020) claims that against the background of this infection, herpes and stomatitis can appear, the balance of microflora is disturbed, candidiasis (thrush) of the oral cavity develops, gingivitis and periodontitis, which are associated with a decrease in immunity.

It should be noted that caries in itself is not a "gateway" for infection, but immunity in any case will be "distracted" by such lesions.

And this greatly weakens the body's defenses. Observations by Irina Makeeva showed that SARS-CoV-2 is able to bind to the ACE-2 molecule (angiotensin-

converting enzyme 2), which is a membrane protein, an entry gate for the virus into cells, and expresses (multiplies) on epithelial cells of the oral mucosa (2020).

Oral cavities contain target cells for the Wuhan pathogen. However, it is not yet possible to draw a clear parallel between the manifestations of dental diseases and the severity of coronavirus infection, since too few statistical data and clinical observations are available that require careful analysis, long-term observation and dental examinations [14.16.17.18.20.21.22.23].

Purpose of the study: to identify the features of damage to the main structures of the oral cavity with the definition of significant neurostomatological syndromes and some biochemical parameters of saliva in coronavirus infection, the ways of their drug therapy. **Research objectives:**

1. Identify signs of damage to the main structures of the oral cavity during coronavirus infection;

2. Assess common neurostomatological and other possible neurological complications in coronavirus disease;

3. To study the features of the biochemical parameters of saliva in case of coronavirus infection;

4. To develop ways of drug therapy for damaged structures of the oral cavity, neurostomatological syndromes and possible neurological complications in COVID-19.

Object of study. In accordance with the goal and objectives of the study, it is planned to observe and study 38 patients who have had a coronavirus infection, complicated by diseases of the oral cavity, neurostomatological syndromes and some neurological complications. It is planned to compare the obtained results with 25 patients with similar complications who did not undergo COVID-19.

Subject of study. Dental screening will be carried out, pain scales will be used to detect neurodental syndromes, blood will be tested for the presence of IgM and IgG to confirm the actual diagnosis of COVID-19, the biochemical composition of saliva will be studied to identify special characteristics, ways of drug correction of detected signs of oral and neurological damage will be developed. complications.

features of damage to the structures of the oral cavity during coronavirus infection will be identified;

on the basis of having a coronavirus disease of the oral cavity, interconnected neurostomatological and some neurological complications will be justified;

a biochemical analysis of saliva will be examined to identify the features of its pathological reaction to COVID-19;

ways of optimal drug therapy will be developed to prevent and treat the consequences of COVID-19 in the oral cavity.

A completely new direction in scientific work, with the identification of features of damage to the structures of the oral cavity, interrelated neurostomatological and some neurological complications, biochemical analysis of saliva in COVID-19, on the basis of which ways of optimal drug therapy will be developed for the prevention and treatment of the consequences of COVID-19, which will allow draw up diagnostic algorithms for early detection and treatment, for the prevention of the consequences and rehabilitation of the damaged structure of the oral cavity and its neurological complications.

At the early stages, it will allow to carry out restorative measures, reduce the degree of pain syndrome and unforeseen expenses for treatment, and also pave a new way for the development of covitology in the adjacent, neurostomatological direction.

Of the interviewed private practitioners, 84.6% confirmed that the conditions for the remoteness of installations of 1.5 meters are observed and the patient's ability to maintain a distance of more than 1.5 meters is preserved. Whereas only 63.2% of doctors in state polyclinics gave a positive answer. The co-respondents noted that in 50% of cases the conditions are not observed either in private or public clinics, in 33.3% they are observed only in private and in 16.7% only in public ones. Respondents working in private clinics noted that their facilities use recirculators for air disinfection in 96.2%, while the number of positive answers from respondents working in public clinics was 100%. Respondents who combined appointments noted that both public and private institutions use recirculators for air disinfection in 100% of cases. Respondents working in private clinics noted that in 100% of cases they see less than 10 patients per shift, while 53% of those working in public clinics noted that they see more than 10 patients per shift. 50% of respondents who combined appointments noted that they see more than 10 patients per shift. 100% of respondents working both in private and public clinics, as well as those who combine appointments in both private and public clinics, noted that equipment is cleaned after each patient [2.4.6.8.14.15.16.17.18.20.22.23].

Confirmed quartzization 2 times a day for 30 minutes 77.8% of respondents working in private clinics, 68.8% of respondents working in public clinics. 201 Materials of the VII All-Russian Scientific and Practical Conference 50% of the combined respondents noted that quartzization of the cabinet is performed 2 times a day for 30 minutes in both state and private clinics, 25% noted that quartzization is performed only in private, and 25% - that quartzing is not performed either in a private

or in a public clinic.

The results of the study can serve as the formation of interdisciplinary close ties for joint therapy and rehabilitation of patients who have undergone coronavirus infection.

prognostic diagnostic, biochemical criteria for coronavirus disease of the oral cavity and its neurological complications will be proposed;

the relationship of dental, neurostomatological and some neurological complications in coronavirus infection will be substantiated;

a feature of the results of the biochemical analysis of saliva for COVID-19 will be highlighted;

specific drug therapies will be developed to prevent and treat the consequences of COVID-19.

The results of this study will be published in leading cited international scientific journals and publications, discussed at international and republican scientific and practical conferences, seminars and round tables.

Educational and methodological recommendations, manuals will be developed, the results of the study will be included in educational programs to create educational elective cycles and will be introduced into the practice of dentistry and neurostomatology of the Republic of Uzbekistan. The ground will be set for the creation of a new specialty - neurostomatology. Summing up, we can say that, in public clinics, they carefully monitor the temperature measurement and the patient's compliance with the mask regimen, carefully collect additional anamnesis, are better aware of the coronavirus and methods of protection, carefully observe the temporary regimen for changing masks, are better equipped with recirculators, but observe distancing worse patients and the mode of quartzing, and also accept more than 10 patients per shift. Moreover, according to our survey, the incidence of coronavirus in private practice doctors is higher than in public clinics.

From the foregoing, we can conclude that it is probably safer for both the patient and the doctor to visit a state clinic. The doctor who combines the reception exposes himself to the maximum danger. In connection with the growth of the human population and freedom of movement, trade, epidemics become even more dangerous and carry more collateral damage. But COVID-19 has taught us a lot, united the efforts and aspirations of humanity. Now we are more prepared for pandemics, and tools and methods have been developed for the prevention and prevention of epidemics, which in the future will help us to more effectively cope with the difficulties of an infectious nature.

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