

## EVALUATION OF THE CONDITION OF THE MUCOSUS CAVITY OF THE MOUTH AND TACTICS OF ITS TREATMENT IN PATIENTS WITH CORONAVIRUS INFECTION COMPLICATED BY ARTERIAL HYPERTENSION



Khabibova Nazira Nasullaevna<sup>1</sup>, Razikova Dilnoza Kadyrovna<sup>2</sup>, Olimova Dildora Vokhidovna<sup>1</sup>

1 - Bukhara State Medical Institute, Republic of Uzbekistan, Bukhara;

2 - Bukhara Regional Second Children's Dental Clinic, Republic of Uzbekistan, Bukhara

## АРТЕРИАЛ ГИПЕРТЕНЗИЯ БИЛАН АСОРАТЛАНГАН КОРОНОВИРУСЛИ БЕМОРЛАРДА ОҒИЗ БЎШЛИҚ ШИЛЛИҚ ҚАВАТИ ҲОЛАТИНИ БАҲОЛАШ ВА УНИ ДАВОЛАШ ТАКТИКАСИ

Хабибова Назира Насуллаевна<sup>1</sup>, Разикова Дилноза Қодировна<sup>2</sup>, Олимова Дилдора Воҳидовна<sup>1</sup>

1 - Бухоро давлат тиббиёт институти, Ўзбекистон Республикаси, Бухоро ш.;

2 - Иккинчи болалар стоматология поликлиникаси, Ўзбекистон Республикаси, Бухоро ш.

## ОЦЕНКА СОСТОЯНИЯ СЛИЗИСТОЙ ПОЛОСТИ РТА И ТАКТИКА ЕЕ ЛЕЧЕНИЯ У БОЛЬНЫХ С КОРОНОВИРУСНОЙ ИНФЕКЦИЕЙ, ОСЛОЖНЁННОЙ АРТЕРИАЛЬНОЙ ГИПЕРТЕНЗИЕЙ

Хабибова Назира Насуллаевна<sup>1</sup>, Разикова Дилноза Кадыровна<sup>2</sup>, Олимова Дилдора Вохидовна<sup>1</sup>

1 - Бухарский государственный медицинский институт, Республика Узбекистан, г. Бухара;

2 - Бухарская областная вторая детская стоматологическая поликлиника, Республика Узбекистан, г. Бухара

e-mail: [info@bdti.uz](mailto:info@bdti.uz)

**Резюме.** Тиббиёт ривожланишининг ҳозирги босқичида аҳоли орасида тиш касалликларининг ўзига хос хусусиятлари дентоалвеолар тизимнинг шикастланишининг юқори тарқалиши ва интенсивлиги, бир вақтнинг ўзида кариёз ва кариоз бўлмаган тиш патологияларининг бир нечта турларининг ривожланиши, шунингдек периодонт ва оғиз шиллиқ қаватининг яллигланиши касалликлари ортиб бормоқда. SARS-CoV-2 вирусининг патогенези ҳали етарли ўрганилмаган. Вирус ҳужайра ичига ангиотензин-конвертинг фермент-2 (ACE2) рецепторлари билан бирикиши орқали киради, деб тахмин қилинади. Юқтирилгандан сўнг, вирус нафас йўллари орқали шиллиқ қават орқали тарқалиб, ситокинларнинг сезиларли даражада чиқарилишига ва организмда иммунитет реакциясига сабаб бўлади. Қонда лимфоцитлар, хусусан, Т-лимфоцитлар сонининг камайиши кузатилади.

**Калим сўзлар:** COVID-19, қон босими, яллигланишига қарши ситокинларнинг ортиқча ишлаб чиқарилиши, интерлейкин-6

**Abstract.** At the present stage of development of medicine, the features of dental morbidity in the population are the high prevalence and intensity of damage to the dentoalveolar system, the simultaneous development of several types of dental pathology of carious and non-carious origin, as well as inflammatory diseases of the periodontium and oral mucosa. The pathogenesis of SARS-CoV-2 lesions has not been studied. It is believed that the virus enters the cell by attaching to angiotensin-converting enzyme-2 (ACE2) receptors. Once infected, the virus spreads through the mucus through the respiratory tract, causing a significant release of cytokines and an immune response in the body. There is a decrease in the number of lymphocytes in the blood, in particular T-lymphocytes

**Keywords:** COVID-19, blood pressure, overproduction of pro-inflammatory cytokines, interleukin-6.

Arterial hypertension remains one of the determining risk factors for the development of severe cardiovascular pathology in people of working age.

The significant prevalence of arterial hypertension and the frequency of its complications determine

the relevance of research on the active detection, treatment and prevention of the disease at the population level.

Along with an increase in the frequency of detection of cardiovascular diseases, their incidence and

mortality from them in young people of working age has significantly increased, thereby increasing the importance of early diagnosis of arterial hypertension, which makes it possible to have an effective effect before irreversible organic changes occur in target organs [2, 3].

Diseases of the oral mucosa and pathological processes in periodontal tissues in arterial hypertension are explained by the pathogenetic commonality of these processes.

One of the most important factors in the pathogenesis of hypertension is a violation in the microcirculatory bed, which is the basis of inflammatory-destructive diseases of periodontal tissues and oral mucosa [6].

The change in the microcirculatory bed progresses with the development of the disease and closely correlates not only with the severity of arterial hypertension, but also with the degree of circulatory disorders in the periodontium.

It has been established that the periodontal microvasculature, an active zone in the hemodynamics of the whole organism, undergoes changes with constant or frequently occurring stresses in the vascular system.

Purpose of the study: To study the clinical and laboratory parameters of the oral fluid and blood in patients who underwent COVID-19 against the background of arterial hypertension, and also, based on the study of the state of the oral mucosa, to develop tactics for managing these groups of patients.

**Material and research methods.** To solve the tasks, the results of clinical and functional studies of the state of the oral mucosa were used in patients with coronavirus infection complicated by hypertension (stages I and II) and in people without arterial pressure. Examination of the oral mucosa was carried out on the basis of the infectious diseases hospital of the city of Bukhara.

The total number of examined persons of the main and control groups was 210 patients. The main group consisted of 160 patients, including 70 women (43.7%) and 90 men (56.3%). The control group included 50 people, 20 women (40.0%) and 30 men (60.0%).

Arterial hypertension remains one of the determining risk factors for the development of severe cardiovascular pathology in people of working age.

The significant prevalence of arterial hypertension and the frequency of its complications determine the relevance of research on the active detection, treatment and prevention of the disease at the population level.

Along with an increase in the frequency of detection of cardiovascular diseases, their incidence and mortality from them in young people of working age has significantly increased, thereby increasing the importance of early diagnosis of arterial hyperten-

sion, which makes it possible to have an effective effect before irreversible organic changes occur in target organs [1, 4].

Diseases of the oral mucosa and pathological processes in periodontal tissues in arterial hypertension are explained by the pathogenetic commonality of these processes.

One of the most important factors in the pathogenesis of hypertension is a violation in the microcirculatory bed, which is the basis of inflammatory-destructive diseases of periodontal tissues and oral mucosa [1, 6].

The change in the microcirculatory bed progresses with the development of the disease and closely correlates not only with the severity of arterial hypertension, but also with the degree of circulatory disorders in the periodontium.

It has been established that the periodontal microvasculature, an active zone in the hemodynamics of the whole organism, undergoes changes with constant or frequently occurring stresses in the vascular system.

Great importance in the occurrence and development of hypertension, generalized periodontitis and periodontal disease is given to increased activation of the sympathetic division of the autonomic nervous system, which leads to dysfunction of the centers that regulate vascular tone and blood pressure, microcirculatory disorders, increased vascular permeability, including including in periodontal tissues [5, 6].

It should also be taken into account that in patients with chronic generalized periodontitis and periodontal disease, combined with arterial hypertension, hypoxia contributes to an increase in the excitability of the sympathetic-adrenal system, swelling of the endothelium of arterial vessels, deterioration of redox processes in periodontal tissues, lowerniya adaptive capabilities of the microvasculature and connective tissue.

These literature data also confirm the studies conducted by L.E. Leonova et al. (1997) indicate that the vast majority of hypertensive patients have pronounced inflammatory and destructive processes in the periodontium, as well as high caries susceptibility and poor oral hygiene.

At the same time, there is no clear idea about the features of changes in the oral mucosa and periodontal tissues in the initial and later stages of hypertension, that is, during the formation and stabilization of arterial hypertension, which was the reason for studying this problem and developing prognostic criteria in the system of dental care.

**The results of the dental examination of patients.** To solve the tasks, the results of clinical and functional studies of the state of the oral mucosa were used in patients with coronavirus infection complicated by hypertension (stages I and II) and in people without arterial pressure.

**Table 1.** Distribution of patients with coronavirus complicated by hypertension by age and stage.

| Age of patients<br>(in years) | Stages of hypertension<br>1 st. 2 tbsp.<br>examined % examined % |       |          |       | Number of patients |       | Control<br>Group |       |
|-------------------------------|--|-------|----------|-------|--------------------|-------|------------------|-------|
|                               | 1 st   |       | 1 st     |       |                    |       |                  |       |
|                               | examined   | %     | examined | %     | examined           | %     | examined         | %     |
| 34-38                         | 12   | 27,2  | 24       | 20,7  | 36                 | 22,5  | 20               | 40,0  |
| 39-49                         | 18   | 40,9  | 47       | 40,5  | 65                 | 40,6  | 12               | 24,0  |
| 50-58                         | 8  | 18,2  | 34       | 29,3  | 42                 | 26,2  | 12               | 24,0  |
| 61 и более                    | 6  | 13,7  | 11       | 9,5   | 17                 | 10,7  | 6                | 12,0  |
| Total                         | 44   | 100,0 | 116      | 100,0 | 160                | 100,0 | 50               | 100,0 |

Examination of the oral mucosa was carried out on the basis of the infectious diseases hospital of the city of Bukhara.

The total number of examined persons of the main and control groups was 210 patients.

The main group consisted of 160 patients, including 70 women (43.7%) and 90 men (56.3%). The control group included 50 people, 20 women (40.0%) and 30 men (60.0%).

Table 1 shows the distribution of patients in the control and main groups by age and stages of hypertension.

The study group included patients aged 34 to 58 years and older. Persons aged 45 to 58 years made up the bulk of them, 49.2% of the total number of patients examined.

50 practically healthy individuals made up the control group of the corresponding ages

To determine the clinical state of the tissues and mucous membranes of the oral cavity of patients, the following were used: the Green-Vermillion oral hygiene index, the papillary-marginal-alveolar index (PMA), the index of the number of carious, filled and extracted teeth - an indicator of the intensity of caries.

Patients were divided by age into 2 groups (main and control) and into 4 age groups:

1 group - 34-38 years old

Group 2 - 39-49 years old

Group 3 - 50-58 years old

4 Group - 61 and older years

Of the 210 patients, the main group included - 44 (21%) with coronavirus infection were complicated by stage I hypertension and 116 (55%) with coronavirus infection were complicated by stage II hypertension, and the control group - 50 (24%) patients were only infected with the coronavirus.

Characteristics of endothelial dysfunction and rheological properties of blood, as well as oral fluid in arterial hypertension in persons

The incidence of arterial hypertension (AH) worldwide has the nature of a pandemic. In 2020, there were 1287 million people with hypertension in the world. According to the forecast for 2025, their number will increase to 1.56 billion. AH occurs as a response to many factors that disrupt the internal balance and adaptation of blood circulation to the condi-

tions of the body's vital activity. It begins as a complex set of shifts and reactions that gradually go beyond the physiological, proceeds with secondary structural changes at the subcellular and cellular levels, with disorders of both systemic and regional blood circulation, "acquires" a cascade of interconnected pathological processes and changes in the vessels, heart, kidneys, central nervous system. AH is thus an unbalanced response of the circulatory system to loads and situations with insufficient compensatory reactions of systemic and regional hemodynamics. At present, serious attention in the views on hypertension has been given to metabolic factors affecting hematovascular functions, the number of which increases with the accumulation of knowledge and the possibilities of laboratory diagnostics. To date, the concept of endothelial dysfunction has been formulated as a fundamentally important link in the pathogenesis of AH. Changes in cell reception, intracellular signaling, as well as disturbances in hematovascular interactions are both the cause and one of the decisive links in the pathogenesis of hypertension, atherosclerosis, and cerebrovascular accidents. To date, a number of issues related to arterial hypertension and atherosclerosis require resolution based on further in-depth study interaction of structural changes in the vascular system of the brain and the state of general and regional hemodynamics, rheological properties of blood, metabolism, hemostasis and endothelial function. Platelets occupy an important place in the cellular-humoral interaction of hemostasis processes.

It has been established that in patients with OM pathology combined with hypertension, there is a decrease in thromboresistance of the vascular wall, which is manifested by inhibition of the anticoagulant and fibrinolytic activity of the endothelium, which is apparently associated with a change in thromboresistance of the vascular endothelium. A decrease in the anticoagulant activity of the vascular endothelium in patients of the main group is manifested by inhibition of the release of antithrombin III by the endothelium of the vascular wall. Inhibition of the fibrinolytic activity of the vascular endothelium may be associated with a decrease in the release of tissue plasminogen activator t-PA and an increase in the level of homocysteine,

**Conclusions.** In chronic inflammatory diseases of the oral mucosa with a combination of its hypertension, especially in those who had coronavirus, a slight increase in the concentration of pro-inflammatory cytokines IL-1b, IL-6 was noted in the blood and oral fluid. At the same time, the concentration of lactoferrin and cortisol in the oral fluid has a multidirectional character in patients who have undergone coronavirus.

#### Literature:

1. Khabibova N.N. Characteristic features of the biochemical indicators of mixed saliva in patients with chronic recurrent aphthosis stomatitis// Global Science Research Journals. - 2019. - Vol. 7 (8). – P. 521-526.
2. Habibova N.N., Olimova D.V. Features of clinical manifestations, diagnostics and treatment of glossalgia. // New Day in Medicine. –2021. - № 6 (38). – P. 96-98
3. Wang C., Horby P.W., Hayden F.G., Gao G.F. A novel coronavirus outbreak of global health concern. Lancet. 2020;395:470–473. doi: 10.1016/S0140-6736(20)30185-9.
4. Centers-of-Disease-Control-and-Prevention Confirmed 2019- nCoV cases globally. [(accessed on 31 January 2020)]
5. World-Health-Organization Statement on the second meeting of the International Health Regulations (2005) Emergency Committee regarding the outbreak of novel coronavirus (2019-nCoV) [(accessed on 31 January 2020)]; 2020-statement-on-the-second-meeting-of-the-international-health-regulations-

(2005)-emergency-committee-regarding-the-outbreak-of- novel-coronavirus-(2019-ncov).

6. Chan J.F., To K.K., Tse H., Jin D.Y., Yuen K.Y. Interspecies transmission and emergence of novel viruses: lessons from bats and birds. Trends Microbiol. 2013;21:544–555.

#### **ОЦЕНКА СОСТОЯНИЯ СЛИЗИСТОЙ ПОЛОСТИ РТА И ТАКТИКА ЕЕ ЛЕЧЕНИЯ У БОЛЬНЫХ С КОРОНАВИРУСНОЙ ИНФЕКЦИЕЙ, ОСЛОЖНЁННОЙ АРТЕРИАЛЬНОЙ ГИПЕРТЕНЗИЕЙ**

*Хабибова Н.Н., Разикова Д.К., Олимова Д.В.*

**Резюме.** На современном этапе развития медицины особенностями стоматологической заболеваемости у населения являются высокая распространённость и интенсивность поражения зубочелюстной системы, одновременное развитие нескольких видов патологии зубов кариозного и некариозного происхождения, а также воспалительных заболеваний пародонта и слизистой оболочки полости рта. Патогенез поражения SARS-CoV-2 не изучен. Считается, что вирус попадает в клетку присоединением к рецепторам ангиотензинпревращающего фермента-2 (АПФ2). После заражения вирус распространяется через слизь по дыхательным путям, вызывая значительный выброс цитокинов и иммунный ответ в организме. Наблюдается снижение количества лимфоцитов в крови, в частности Т-лимфоцитов

**Ключевые слова:** COVID-19, артериальное давление, гиперпродукции провоспалительных цитокинов, интерлейкин-6.