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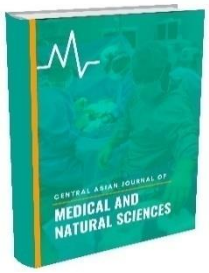

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Progression of Arterial Hypertension with Risk of Cardiovascular Complications in Patients with Covid-19

1. **Tashkenbayeva Eleonora Negmatovna**
2. **Mukhiddinov Abdumalik Inoyatovich**
3. **Islomov Anvar Norbekovich**

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[1,2,3] Department of Internal Diseases and Cardiology No 2 of Samarkand State Medical University. Samarkand, Uzbekistan

Abstract: Covid-19 disease has rapidly developed into a pandemic in all countries of the world, and millions of people on Earth have been infected with this disease. Naturally, such a process forces many researchers and scientists to comprehensively and in-depth study this disease. The pandemic of the new coronavirus infection COVID-19 (Corona VIrus Disease 2019) has become a serious challenge to humanity. This analysis will not only more accurately determine the nature of the development of arterial hypertension, but will also help to identify the impact of 2019-nCoV infection on arterial hypertension (AH).

Objective: the clinical features of the progression of hypertension with the risk of cardiovascular complications in patients with Covid-19

The object of the study was 221 patients, who received treatment in a COVID specialized center.

Conclusions: Thus, we can say that in our patients, both in the main and in the comparative groups, there was a decrease in blood pressure relative to the normal level, and it was found that this condition is associated with damage to the lower respiratory tract and, at the same time, an even more severe course of Covid-19 disease.

Key words: COVID-19, arterial hypertension, blood pressure, cardiovascular complications.

INTRODUCTION

Currently, Covid-19 disease has rapidly developed into a pandemic in all countries of the world, and millions of people on Earth have been infected with this disease. Naturally, such a process forces many researchers and scientists to comprehensively and in-depth study this disease. The pandemic of the new coronavirus infection COVID-19 (Corona VIrus Disease 2019) has become a serious challenge to humanity. Before the pandemic, one of the main global health problems of all countries were diseases of the cardiovascular system (CVD), among which arterial hypertension (AH), which is the leading risk factor for the development of vascular catastrophes in the form of acute cerebral circulatory

disorders, myocardial infarction. Thanks to the modern development of medicine, changing approaches to treatment based on scientific data and new knowledge, the use of various preventive measures, changes in the level and lifestyle in general, mortality from infectious diseases has been significantly and steadily decreasing worldwide. The year 2020 has changed the decades-old perception of diseases that pose a major threat to health on a global scale. In the first place was the threat of infectious genesis - the SARS CoV-2 virus (Severe acute respiratory syndrome-related coronavirus), which caused Covid-19. The leading clinical manifestation of Covid-19 coronavirus infection is fever, cough (dry or with a small amount of sputum), shortness of breath, general weakness, sore throat, rhinitis and rhinorrhea, olfactory and gustatory disorders. However, to date, clinical features of infection have not been established in patients with a burdened premorbid background, in particular with diseases of CCC and hypertension

THE AIM OF THE STUDY IS TO STUDY the clinical features of the progression of hypertension with the risk of cardiovascular complications in patients with Covid-19

MATERIALS AND METHODS OF RESEARCH

In this work, general clinical, instrumental and statistical research methods were used. The study included 221 patients with Covid-19. Based on the purpose of the study, anamnesis and age history of patients, the study was conducted in three comparative groups. The first main group of patients consisted of 94 patients with Covid-19 and hypertension who received standard treatment. Of these, 43 (45.7%) were men and 51 (54.3%) were women. The comparison group consisted of 92 patients with Covid-19 without hypertension. Their average age was 61.8±1.2 years, of which 49 (53.2%) men and 43 (46.8%) women.

Clinical examinations were conducted based on the same criteria and included the following: patient complaints and patient history, duration and risk factors of hypertension, duration of fever, general signs, clinical development and presence of catarrhal symptoms, as well as all clinical signs of Covid-19. All patients underwent pulse oximetry to measure blood oxygen saturation. Pulse oximetry was performed by a noninvasive method to determine the saturation of capillary blood with oxygen.

Blood pressure was measured in both hands in the interval of 10 minutes of rest according to the method of N.S. Korotkov (1935). Instrumental examinations were carried out, such as electrocardiography (ECG), chest X-ray, computed tomography, EchoCG, a 6-minute walking test for physical activity. When collecting anamnesis, the following data were analyzed. The degree of increase in blood pressure was carried out in accordance with the recommendations: I-degree - from 140/90 to 159/99 mmHg, II-I from 160/100 to 179/109 mmHg, III-I - more than 180/110 mmHg.

RESULTS OF THE STUDY AND THEIR DISCUSSION

In the main group of patients, SAD was 153.9 and DAD was 90.3 mmHg. In the comparison group, SAD was 125.3 mmHg. DAD was 75.0 mmHg. Thus, there is a significant difference in the indicator of SAD and DAD between the groups. In all our patients who were observed, a general blood test, a biochemical analysis was performed, and with all the indicators obtained, a comparison was made between the groups, including the leukocyte formula, as a result, no significant difference was found. When observed between the groups in the recovery period of the disease, there was a significant difference in RDW - the width of the distribution of red blood cells. In the main group, it was 14.5 ± 0.4, in the comparison group - 13.6 ± 0.1.

The study of the levels of C-reactive protein (CRP), ferritin and glucose during the recovery period yielded the following result: the obtained indicators were higher in the main group of patients and significantly differed compared to the comparison group. When studying the obtained coagulogram

parameters, including the time of activated thromboplastin, fibrinogen, prothrombin, INR, D-dimer, there was no significant difference between the main and comparative groups.

When assessing the level of increased blood pressure in patients in the main group in the initial period of Covid-19, it showed that 11 patients had arterial hypotension, 52 patients had increased blood pressure, and 31 patients had fluctuation in blood pressure. In the comparison group, 3 patients had a decrease in blood pressure. In the course of our study, in one third of patients in the main group with hypertension after Covid-19, the disease was more severe, and blood pressure indicators were very high, and this situation required an increase in doses of drugs that reduce blood pressure.

In this study, 18.4% of patients infected with Covid- 19 for the first time had an increase in blood pressure during a long recovery period, and arterial hypertension developed. In this category of patients, the acute period of infection With ovid-19 more often occurred without damage to the lower respiratory tract.

Thus, a change in AH indicators requires a change in the amount of antihypertensive drugs; an increase in the minimum dose of drugs is required, and requires the use of combined groups of drugs.

In our study, ECHOCG parameters in patients of the main, comparative and control groups were compared before and after standard treatment. Thus, in the patients of the main group in our observation, the final diastolic size of the left ventricle positively decreased from 6.5±0.1 cm to 6.0±0.1 cm, the final systolic size, in turn, from 5.4±0.1 cm to 4.7± 0.1 cm, and LV LV increased from 49.5±1.1% to 52.5 ±1.2% with a positive decrease in blood in the left ventricle, the final diastolic volume changed positively from 218.5±5.9 ml to 190.4±9.0 ml, and the final systolic volume from 139.1±4.9 ml to 104.4±5.6 ml.

In our patients of the comparative group, the final diastolic size decreased from 6.7±0.09 cm to 6.3±0.08 cm, and while the final systolic size decreased from 5.5±0.1 cm to 5.2±0.1 cm, while the blood ejection fraction increased from 51.9±1.2% to 59.0±1.04%, from BWW changed from 210.9±4.8 ml to 194.4±4.9 ml, CSR changed from 146.9±5.0 ml to 134.8±5.1ml.

In our control group patients, the final diastolic size decreased from 6.2±0.1 cm to 5.9±0.1 cm, and while the final systolic size decreased from 4.9±0.1 cm to 4.6±0.2 cm, while the blood ejection fraction increased from 55.5±1.2% to 62.9±1.3%, from BWW changed from 186.8±11.2 ml to 179.6±11.2 ml, CSR changed from 112.0±8.6 ml to 104.7±8.5 ml.

CONCLUSIONS

Thus, we can say that in our patients, both in the main and in the comparative groups, there was a decrease in blood pressure relative to the normal level, and it was found that this condition is associated with damage to the lower respiratory tract and, at the same time, an even more severe course of Covid-19 disease.

Thus, studies have shown that in the acute period of Covid-19, patients of the main group had significantly more changes in blood pressure in one direction or another than in patients of the comparison group. At the same time, our patients in the main and comparative groups had a decrease in the level of cardiac blood pressure indicators as a result of the severe course of the infectious process at the time of damage to the lower respiratory tract. During the dynamic observation of our patients during the recovery period from Covid-19, it was found that 13.2% of patients had a decrease in blood pressure. In 4 (4.0%) patients of the main group, the doses of drugs that lower blood pressure were reduced, and in 6 (6.1%) therapy was completely canceled.

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