SCHOLASTIC:
Journal of Natural and Medical Education
Volume 2, Issue 5, Year 2023 ISSN: 2835-303X
https://univerpubl.com/index.php/scholastic

ARTERIAL HYPERTENSION IN PATIENTS WITH COVID-19

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Article Information

Received: Sep 25, 2023
Accepted: Oct 23, 2023
Published: Nov 6, 2023

Keywords
arterial hypertension, clinical picture, coronavirus infection.

ANNOTATION
The COVID-19 pandemic has caused unprecedented morbidity, mortality and global social unrest. Considering the high prevalence of arterial hypertension (AH), as well as the fact that components of the renin-angiotensin-aldosterone system (RAAS) are interested in the penetration of the virus into the body during the coronavirus pandemic, further study of the features of the course of arterial hypertension in survivors of COVID-19. The study was conducted on the basis of the cardiology department of the multidisciplinary clinic of the Tashkent Medical Academy. Hypertensive patients with covid-19 had statistically significant (p=0.031) blood pressure instability compared with hypertensive patients without covid-19 (35.0% vs. 25.0%).

Introduction

Arterial hypertension (HTN) is a global problem throughout the world. The prevalence of arterial hypertension among the adult population is 30-45%. The addition of infectious diseases to hypertension can affect the course of hypertension, and the clinical picture of infection in accompanying patients can be characterized by certain features, as clearly demonstrated by the new coronavirus infection - the COVID-19 pandemic. The SARS-CoV-2 virus, like other coronaviruses, uses traditional receptor mechanisms to penetrate cells [1]. Like influenza viruses, binding of the virus to the angiotensin-converting enzyme 2 (AAF2) receptor via a serine protease identifies a spike protein located on the surface of the viral particle. Using this mechanism, the virus successfully penetrates the target cell [2, 3]. The key to infection and subsequent spread of the virus is the binding of the spike enzyme to the AAF2 receptor. There are also opinions that their high relatedness to each other explains the unusual virulence of SARS-CoV-2 [4-6]. In turn, the AAF2 receptor is one of the most important components of the renin-angiotensin-aldosterone system (RAAS). This system plays a key role in the regulation of blood pressure (blood pressure) and fluid

and electrolyte balance [7, 8]. In the scientific literature, much attention is paid to the study of concomitant diseases as additional risk factors for the development of severe disease and its complications in patients with Covid-19. Thus, there is evidence that the presence of bronchopulmonary diseases increases the likelihood of severe COVID-19 [9, 10]. It is assumed that the high concentration of AAF2 receptors in the wall of blood vessels, pericytes and myocardium under the influence of the SARS-CoV-2 virus and dysfunction of RAAS/AAF2 are of great pathogenetic importance in the development of pathology of the cardiovascular system. [11-13]. The high incidence of myocardial injury in patients with severe COVID-19 was confirmed by the results of one retrospective study [14]. There have also been cases of ST-segment elevation myocardial infarction due to thrombosis of one or more coronary arteries in patients with COVID-19[16]. Thus, an analysis of the literature shows that the severity of COVID-19, the development of acute respiratory distress syndrome and mortality in patients with arterial hypertension are higher than in patients without hypertension. Based on these data, hypertension can be considered an independent risk factor for the severity of COVID-19 [18-23]. At the same time, the results of one of the French studies showed that the presence of hypertension does not affect the severity of COVID-19 and, therefore, does not require frequent use of artificial ventilation during hospital treatment of this category of patients.[24]. Further results of multivariate analysis showed that age ≥ 50 years, the presence of hypertension and male gender are independent risk factors for the unfavorable course of COVID-19 and the need for hospitalization [25]. It should be taken into account that patients with more severe forms of COVID-19 and hypertension may be more susceptible to the harmful effects of SARS-CoV-2 due to age-related characteristics of the immune system [26]. It should be noted that patients with hypertension often have multiple concomitant pathologies, which can affect the infectious process. The Centers for Disease Control and Prevention does not list hypertension as a risk factor for COVID-19 disease severity. This is because there is currently no clear evidence supporting the role of hypertension as an independent risk factor for severe disease or death from COVID-19 infection. During the COVID-19 pandemic, patients with concomitant diseases, in particular hypertension, require special attention from a doctor, since they belong to one of the vulnerable groups, which makes it scientifically and practically possible to study the passage of COVID-19 in patients. with hypertension determines interest. In this regard, the purpose of this study is to study the characteristics of the clinical course of hypertension in patients with.

Purpose of the study. Optimization of the dynamics and tactics of ACB in patients with acute respiratory syndrome due to COVID-19.

Materials and methods of research. The study was conducted on the basis of the therapeutic department of the multidisciplinary clinic of Samarkand Medical University. 107 patients aged from 45 to 70 years were under observation. The first group included 63 patients with acute respiratory syndrome infected with COVID-19 (group 1, main group), the second group included 44 patients with acute respiratory syndrome who did not suffer from COVID-19 (group 2). Criteria for inclusion in the study: 1) history of coronavirus infection (laboratory confirmed); 2) patients with hypertension of varying degrees and stages. Both groups had the following diseases: impaired glucose tolerance, type 2 diabetes mellitus, metabolic syndrome, obesity. The study did not include patients with secondary arterial hypertension, broncho-obstructive syndrome, patients with thyrotoxicosis and patients in the acute stage of cardiovascular diseases. The observation period from the moment of inclusion in the study was 1 year and consisted of three visits: the first - at the time of inclusion in the study; the second – after 3 months; the third - 6 months after inclusion in the study. During the study, the following was carried out: study of medical documentation, survey of patients, analysis and comparison of laboratory and instrumental data. The following information was

entered into the personal registration card: gender, age, height, body mass index (BMI), smoking history, clinical symptoms (shortness of breath, general weakness, headache), blood circulation, headache, unstable blood pressure). At all control visits, the following indicators were recorded: heart rate (HR), respiratory rate, blood pressure in three times the volume. Information on regularly taken antihypertensive drugs was also determined: angiotensin-converting enzyme inhibitors (ACEIs), angiotensin receptor antagonists (ARA), diuretics, calcium antagonists, β-blockers. In addition, blood counts, C-reactive protein (CRO), D-dimer, and fibrinogen levels were assessed at each follow-up visit in both study groups during the follow-up period. For dynamic monitoring and assessment of the somatic condition, patients in both groups underwent electrocardiography and echocardiography with determination of left ventricular ejection fraction (LVEF) at each follow-up visit.

Research results. The main clinical and demographic characteristics of patients of both groups included in the study are presented in Table 1. It was noted that diseases aggravating the general somatic condition (JIC, CD, SO'OK) were recorded mainly in patients of group 1.

Table 1.

Pointer	Main group, n=63	Control group, n=44	R
Women	34,6%	26 %	p>0,05
Men	65,4%	74 %	p>0,05
Average age	54 ±10,8 let	52 ±9,45 let	p>0,05
Accompanying diseases	65,5%	56,7%	p>0,05
Diabetes	23%	6	0,004
Ischemic heart disease	24	15	0,002

Changes in SAP (systolic blood pressure) and DAP (diastolic blood pressure) measured at home during the day (more than 30 mm Hg) were regarded as “unstable blood pressure” (patients kept observation diaries during the study, where the necessary indicators were noted). Mostly, patients in both groups complained of general weakness at the 2nd visit. However, at the last visit in patients of group 1, general weakness was statistically significant (p = 0.033) (Table 2.)

Table 2.

Dynamics of main clinical signs in comparison groups

Complaints	Initial		r	After 3 months		R	After 6 months		R
	Group 1	Group 2		Group 1	Group 2		Group 1	Group 2	
Panting	9,2	3,8	0,034	5,8	1,5	0,66	2,4	0	0,49
General weakness	44	34	0,6	38	22	0,042	20	12	0,033
Dizziness	18,5	5,6	0,08	12,4	12	0,76	13	2,7	0,012
Headache	12,5	17	0,78	12	13	0,85	12	9	0,54
Unstable AP	37	24	0,034	39	24	0,019	34	12	0,03
No complaints	2	8	0,023	3,7	38	<0,001	21	72	<0,001

SAP and DAP scores were reported as the average of scores recorded by patients in individual diaries over the entire study period. In patients of the main group, changes in AP of varying quality were observed

(increase and decrease), which required correction of previously selected antihypertensive therapy. At the second and third visits, the target levels of SAP and DAP in patients could not be achieved even with antihypertensive treatment. In both groups of patients, during dynamic observation, the average AP indicator increased or did not tend to decrease, which required corrective measures. Considering the decompensation of hypertension, there was a need to correct blood pressure, that is, on the recommendation of the attending physician, the previously taken drug was replaced with fixed combination drugs.

Summary. In the period after COVID-19, 49.4% of patients experienced a change in the course of hypertension, including: 20.2% - progression of the disease, 18.6% - increase in the level of hypertension, 12.5% - regression of the disease. The development of hypertension was observed in middle-aged patients with a mild form of COVID-19, without a premorbid background. Data obtained from examining patients with COVID-19 indicate that hypertension has a more negative effect, in which the target blood pressure level is not achieved, and a decrease in CCS predisposes to the development of acute cardiovascular diseases. It should be noted that in patients with hypertension suffering from COVID-19, it is advisable to use effective methods for correcting ACD.

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