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COVID-19 CORONAVIRUS INFECTION IN PATIENTS WITH CARDIOVASCULAR DISEASES

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Abstract

At the present stage, COVID-19 remains an urgent medical and social health problem worldwide. During the pandemic period, over 765 million cases of COVID-19 were registered, with 6.9 million cases resulting in death. Mortality from infection varies widely depending on the region of residence, age, concomitant conditions, availability of medical care, the level of diagnostic coverage and the system's readiness to provide care to a large number of patients with severe course and ranges from 1 to 5%.

Keywords: COVID-19, coronavirus infection, cardiovascular diseases, arterial hypertension, comorbidity, chronic heart failure, cardiac arrhythmia

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Introduction

Studies have shown that every third patient with COVID-19 has CVD, while the risk of hospitalization of such patients increases by 6 times, and the risk of death by 12 times [1]. Data from the study of patient survival in various concomitant diseases have demonstrated that CVD are independent risk factors for mortality from COVID-19. The recorded mortality rates for COVID-19 are 10.5% in patients with CVD, 7.3% and 6% in patients with hypertension. This is higher than the mortality rate observed worldwide in patients without concomitant diseases, which is 3-4% [2]. It has been shown that CVD is a risk factor for severe course and mortality of infected people, and the adverse effect of drugs used to treat infection on the cardiovascular system is also possible [3]. The presence of CVD in patients with COVID-19 coronavirus infection is accompanied by difficulties in the management of such patients [4].

According to the WHO Regional Office for Europe, 88% of deaths occur in patients 65 years of age and older. At the same time, 95% of all deaths had concomitant pathologies, of which CVD was 65% [5]. However, there is no convincing evidence of an increased likelihood of infection with the SARS-CoV-2 virus in CVD patients. Perhaps, the degree of risk of COVID-19 infection does not depend on CVD, but they determine the more severe course of the disease. In this regard, the study of the features of the course of coronavirus infection in patients with CVD is of important scientific and practical interest.

Material and Method

All studies were carried out at the Bukhara regional infectious diseases hospital. The study included hospitalized and treated patients. The diagnosis of COVID-19 was made on the advice of a pulmonologist and laboratory-approved analyzes. With various research methods, the diagnosis was made after the advice of a pulmonologist.The study included patients hospitalized or treated in an outpatient setting between 2020 and 2022.

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Results

When classifying the study population based on the manifestation of clinical symptoms, cough was registered in 33 patients with the moderate form of COVID-19 and in 59 patients with the severe form, affecting a total of 112 individuals. In percentage terms among the various symptoms, coughing was observed in 67.3% of subjects presenting with the moderate course of the disease. Conversely, the prevalence of this symptom was significantly more pronounced among patients with the severe form of COVID-19, reaching 83.1%. Out of the 120 total patients evaluated, a cough was identified in 112 individuals (93.3%). Furthermore, an assessment of the comorbid background within the analyzed cohort demonstrated that arterial hypertension (AH) made the most substantial contribution, with this nosology being present in 93.4% of the patients. In the context of systemic vasoconstriction and endothelial dysfunction, this parameter acts as the primary aggravating factor that further worsens the clinical course of the coronavirus infection.

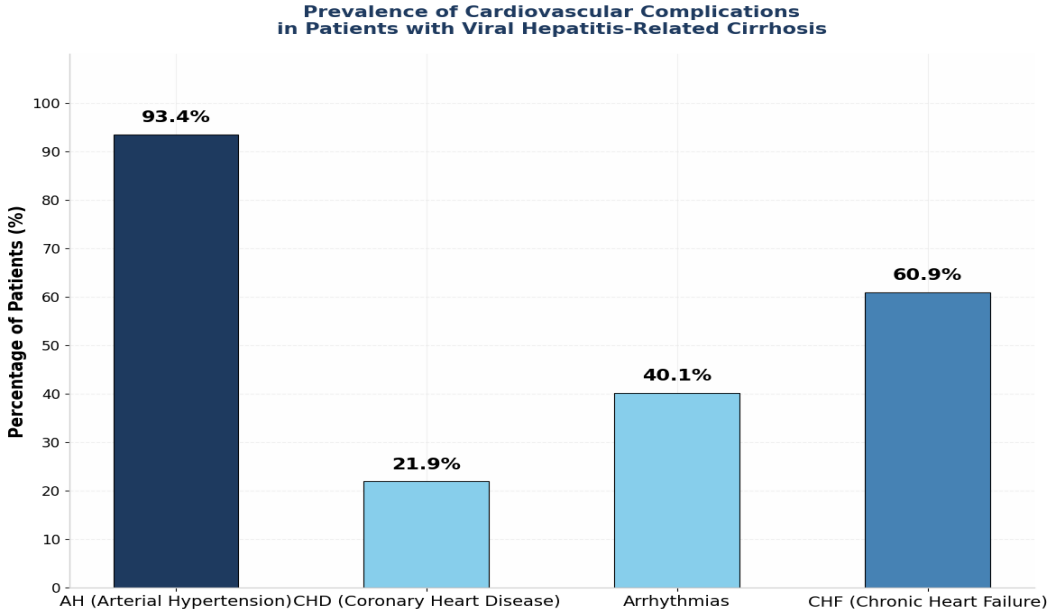

Fig. 7. Frequency of cardiovascular pathology in patients with chronic liver disease

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Arterial hypertension (AH) dominates in the structure of cardiovascular pathology, which was verified in the vast majority of the examined patients (93.4%). The presence of such a high percentage of hypertension in conditions of chronic endotoxicosis forms a syndrome of mutual aggravation, inducing systemic vasoconstriction and exacerbating perfusion disorders in target organs.

The second most common clinically significant complication was chronic heart failure (CHF), which was diagnosed in 60.9% of patients in the main group. The progression of myocardial decompensation processes is closely associated with concomitant cardiac arrhythmias (arrhythmias), registered in 40.1% of cases. Such a pronounced prevalence of CHF and arrhythmic syndromes in patients with virus-induced cirrhosis of the liver indicates profound metabolic and hemodynamic shifts that potentiate the risk of acute cardiovascular disasters. The lowest proportion in the structure of the studied pathology was accounted for by coronary heart disease (CHD), which was noted in 21.9% of the examined individuals.

Thus, the high prevalence of concomitant cardiovascular pathology (especially hypertension and CHF) in patients with viral cirrhosis of the liver dictates the need for mandatory integration of cardioprotective and antihypertensive therapy into the standards of comprehensive treatment of this comorbid patient population at the early stages of management.

Conclusion

The findings of this study demonstrate that a history of pre-existing cardiovascular pathologies significantly impairs the clinical course, worsens the prognosis, and aggravates the overall outcomes of patients diagnosed with COVID-19. Concomitant cardiovascular conditions are associated with an increased risk of shifting the infection into a severe or critical course, requiring intensive care management.

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In the structural profile of cardiovascular comorbidities within the analyzed cohort, arterial hypertension holds the absolute dominant position (93.4%), followed by chronic heart failure (60.9%) and various cardiac arrhythmias (40.1%). In the context of viral-induced systemic vasoconstriction and endothelial dysfunction, these co-morbidities act as key aggravating factors that multi-fold the risk of acute myocardial injury and clinical decompensation. Consequently, underlying cardiovascular diseases must be recognized as an independent, major predictor of poor clinical outcomes and higher in-hospital mortality. Early risk stratification, proactive cardiovascular monitoring, and the timely integration of multidisciplinary cardioprotective and antihypertensive strategies are critical to reducing complications and optimizing survival rates in this high-risk patient population.

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