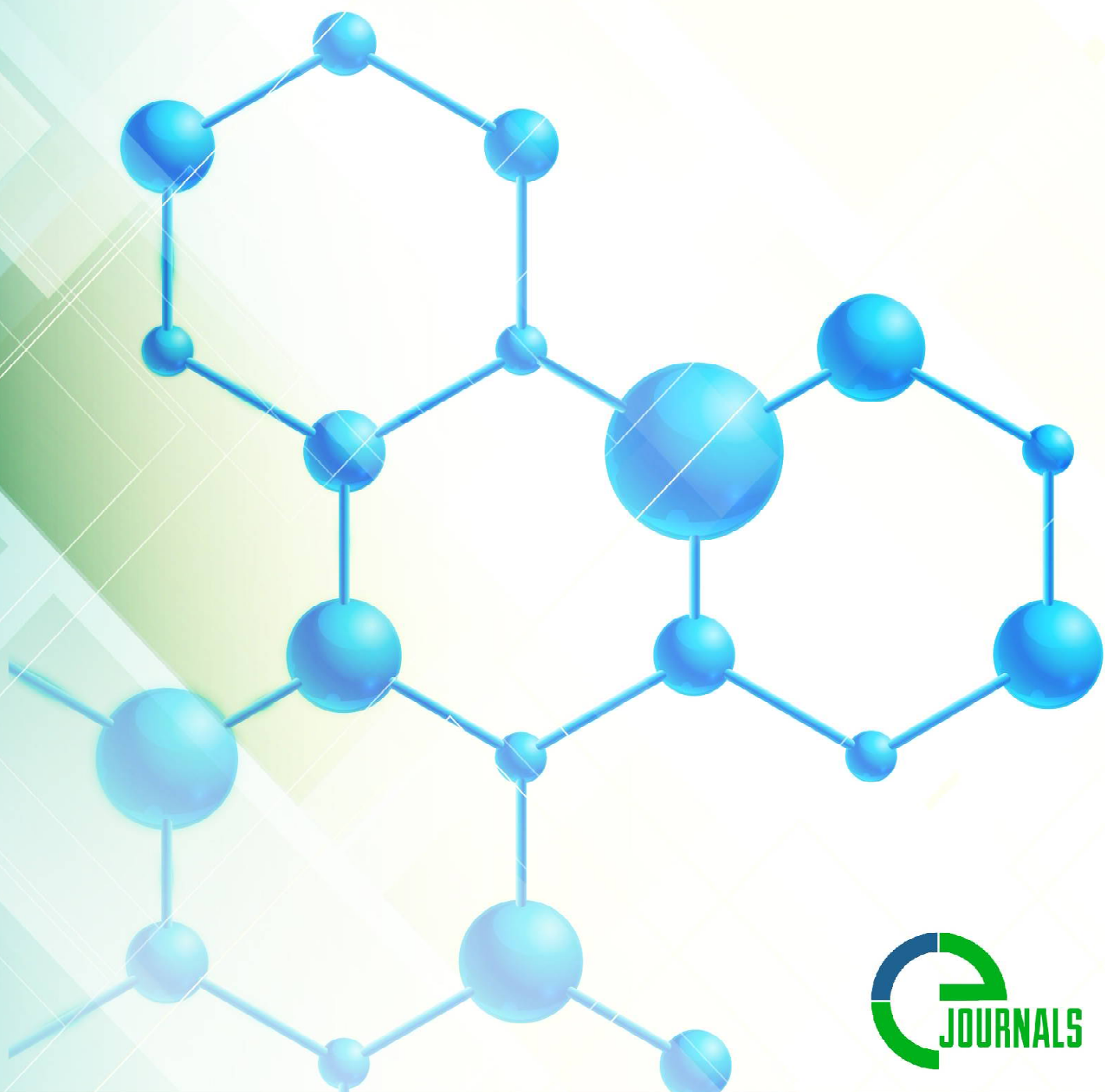


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CLINICAL AND EPIDEMIOLOGICAL CHARACTERISTICS OF PATIENTS WITH SEVERE PNEUMONIA CAUSED BY SARS-COV-2

Oblokulov Abdurashid Rakhimovich

Radjabov Alisher Rakhimovich

Bukhara State Medical Institute named after Abu Ali ibn Sino Bukhara,
Republic of Uzbekistan

Email: a.obloqulov59@gmail.com;

<https://orcid.org/0000-0002-8807-3081>

Abstract: The aim of the study was to identify predictors of severe pneumonia caused by the SARS-CoV-2 virus and to describe the general characteristics of patients hospitalized in the reanimatology and intensive therapy of the Bukhara Regional Infectious Diseases Hospital.

Results. Clinical, laboratory and instrumental data of 110 patients hospitalized in the reanimatology and intensive therapy were studied, and predictors of severe pneumonia caused by the SARS-CoV-2 virus were identified. The contribution of a number of factors to the development of a severe course of the disease and the risk of an unfavorable outcome was determined: male gender, age over 70,5 years and concomitant diseases and severe respiratory failure.

Conclusion. Clinical characteristics of a typical patient with severe COVID-19 who is admitted to the RIT: an elderly patient with an increased body weight, an underestimated concomitant pathology at the pre-hospital stage, and severe respiratory failure.

Key words: SARS-CoV-2, COVID-19, risk factors, pneumonia.

The relevance of research. Since December 2019, the 2019 coronavirus disease (COVID-19) caused by coronavirus 2 (SARS-CoV-2) severe acute respiratory syndrome has spread and become a global pandemic. As of April 16, 2021, there were more than 140 million confirmed cases and 3,006,207 deaths [1, 2], with this number continuing to rise globally. According to the clinical manifestations, patients with COVID-19 can be divided into severe and non-severe groups. The severe group can be divided into severe and critical subgroups. In a published case series, patients with mild disease had a favorable prognosis. However, mortality from severe cases, especially critical ones, is still high [3, 4].

Cumulative data show that more than 80% of COVID-19 patients are receiving antibiotic treatment, as it is difficult to identify COVID-19 patients who have no underlying bacterial infection who can safely stop taking antibiotics. However, recent clinical data indicate that procalcitonin can help assess the condition of these patients and reduce unnecessary antibiotic use [5, 6, 7].

In the severe course of COVID 19, there are two different pathological mechanisms of disruption of the blood coagulation system, manifested by characteristic clinical symptoms [8, 9]. In the lungs and, possibly, in other organs, local damage to the vascular endothelium occurs, leading to angiopathy, activation and aggregation of platelets with the formation of blood clots and concomitant consumption of platelets [10, 11].

The aim of the study is to identify predictors of severe pneumonia caused by the SARS-CoV-2 virus and to describe the general characteristics of patients admitted to the intensive care unit of the Bukhara Regional Infectious Diseases Hospital.

Research materials and methods. Prospective observational study. The data of 110 patients obtained upon admission to the intensive care unit of intensive care in the

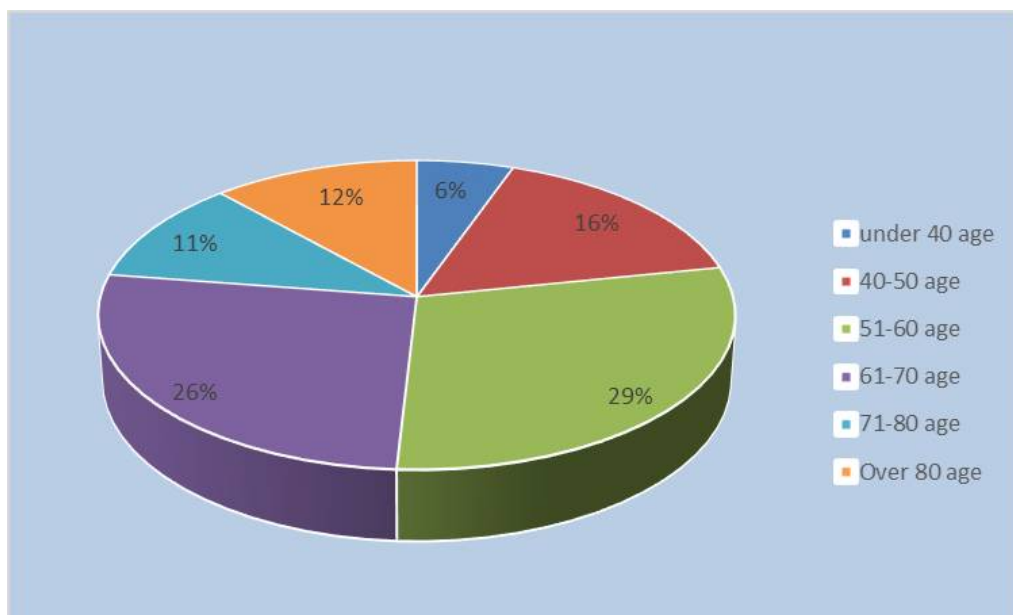
Bukhara regional infectious diseases hospital are presented.

All patients underwent monitoring of the state of the cardio-respiratory system using monitors DIXION Storom 5500 (Germany), EDAN iM 80 (China). The following parameters were recorded: ECG, heart rate, respiratory rate, blood pressure, SpO₂.

Routine blood tests: white blood cell count (WBC), lymphocyte count (LYM), mononuclear cell count (MONO), neutrophil count (NEU) were performed on blood samples.

For chest imaging with confirmed and suspected COVID-19, chest x-rays were used using a portable Mobile Cooper apparatus (Browiner, China).

Research results. Clinical, epidemiological and instrumental data of 110 patients admitted to the ICU were studied. When analyzing the distribution of patients by age, attention is drawn to the minimum number of patients under 40 years of age. The main age groups of the observed patients were represented by persons 50-60 and over 80 years old. The average age of the patients was 67 years, including 72 (65.5%) men and 38 (35.5%) women (Fig.).



Picture 1. Distribution of patients by age (%)

Patients were admitted to the hospital approximately on the 4th day after the onset of the disease and, against the background of a sharp deterioration in their condition, were hospitalized in the intensive care unit in the first three days after hospitalization. All were confirmed by the data on the presence of SARS-CoV-2 by polymerase chain reaction. Many patients had concomitant diseases - ischemic heart disease 21 (19.1%), arterial hypertension 48 (43.6%), diabetes mellitus 20 (18.2%), etc. A small part of the patients consisted of patients with a history of lung diseases, cancer patients 7 (64%) and patients with chronic kidney disease 6 (5.5%) and liver 6 (5.5%) (table).

Table

Epidemiological characteristics of patients (n = 110)

Indicator	Value
Age, years	65 (\pm 15)
Men / women	72/38
Time from the onset of the disease to admission to the ICU, days	4 (2–6)
Time from admission to the hospital to transfer to the ICU, days	1 (0–3)
Laboratory PCR-confirmed SARS-CoV-2, n (%)	110 (100)
Ischemic heart disease, n (%)	21 (19,1)
Arterial hypertension, n (%)	48 (43,6)
Chronic kidney disease, n (%)	6 (5,5)
Chronic liver disease, n (%)	6 (5,5)
Diabetes mellitus, n (%)	20 (18,2)
Chronic lung diseases, n (%)	11 (10)
Cerebrovascular diseases, n (%)	12 (10,9)
Oncological diseases, n (%)	7 (64)

In all patients, respiratory failure was manifested by a decrease in blood oxygen saturation, the median was 86%. The results of X-ray studies showed that changes in pneumonia on chest X-rays are mainly bilateral 68 (61.9%) and have opaque glass opacity in 56 (50.9%) cases, peripheral changes on the X-ray in (35.5%) and lower zone (45.5%) in distribution.

87 (70.9%) patients were in prone position for at least 16 h / day, 98 (89.1%) patients received treatment using non-invasive oxygen therapy with a CPAP device.

Discussion. The clinical characteristics of an average patient entering the ICU with severe respiratory failure caused by COVID-19 is as follows: these are elderly patients (with a significant proportion of elderly patients), with increased body weight, concomitant pathology. A large number of elderly and senile patients are described in almost all similar publications, which was especially pronounced among Italian colleagues, although it is obvious that the number of patients in this category in their case is associated primarily with the high life expectancy in Italy [12].

All patients admitted to the ICU suffered from severe hypoxemia, since, due to the limited space in the intensive care unit, moderately severe patients received treatment in the conditions of bed wards.

In our hospital, the criteria for transferring patients to the ICU was the impossibility of maintaining blood oxygen saturation of more than 90% by any means available in the hospital wards - inhalation of O₂ through a mask in a prone position in combination with tachypnea and obviously increased body costs for breathing. This tactic of making a decision to transfer to the ICU does not look optimal, but, unfortunately, it is generally accepted in world practice during the COVID-19 pandemic due to forced circumstances [13, 14].

In addition, the presence of high fever (more than 39 ° C), hemodynamic instability and criteria for a significant deterioration of the patient's condition during the last 24 hours in terms of the totality of symptoms were taken into account.

Conclusion. Clinical characteristics of a typical patient with severe COVID-19 admitted to ICU: an elderly patient with increased body weight, concomitant pathology underestimated at the prehospital stage, severe respiratory failure.

Used literature.

1. WHO. Rolling updates on coronavirus disease (COVID19). <https://www.worldometers.info/coronavirus/>. Accessed 16 Apr / 2020.
2. Ulmasova S.I., Atabekov N.S., Kasimov I.A., Shomansurova Sh.Sh. On the study of the etiological and epidemiological characteristics of the new coronavirus infection (COVID-19) in the world. // *Infection, immunity and pharmacology*. 1/2021 p. 79-87.
3. Yang X, Yu Y, Xu J et al. Clinical course and outcomes of critically ill patients with SARS-CoV-2 pneumonia in Wuhan, China: a single-centered, retrospective, observational study. *Lancet Respir Med*. 2020; 8 (5): 475-81,
4. Oblokulov Abdurashid Rakhimovich, Kholov Uktam Asadovich, Niyozov Gulom Eshmuradovich, Ergashov Maqsud Muzaffarovich, Khusenova Zilola Zakhirovna. (2021). Extrapulmonary manifestations of COVID-19. *Infection, immunity and pharmacology*, No. 1. 62-66.
5. Niyozov G.E., Oblokulov A.R., Pondina A.I. et al. (2020) Clinical and epidemiological characteristics of COVID-19 patients // *New Day in Medicine*. No. 4 (32) 110-115 p.
6. Williams EJ et al. (2020) Routine measurement of serum procalcitonin allows antibiotics to be safely withheld in patients admitted to hospital with SARS-CoV-2 infection. *medRxiv. doi.org / 10.1101 / 2020.06.29.20136572*.
7. Abdurashid Rakhimovich Oblokulov, Zilola Zohirovna Husenova, Maksudjon Muzaffarovich Ergashev. (2021). Procalcitonin as an Indicator of Antibacterial Therapy in Covid-19. *Annals of the Romanian Society for Cell Biology*, Volume 25: Issue 3.5220-5224.
8. Oblokulov A.R., Niyozov G.E. (2020). Clinical and epidemiological characteristics of patients with COVID-19. *International Journal of Pharmaceutical Research*, 12 (4), pp. 3749-3752.
9. Bayzhdanov A.K., Khikmatullaeva A.S., Ibadullaeva N.S. and others. Disruption of the blood coagulation system in COVID-19. // *Infection, immunity and pharmacology*. 1/2021 p. 7-12.
10. Varga Z, Flammer AJ, Steiger P, et al. Endothelial cell infection and endotheliitis in COVID-19. *The Lancet* 2020 May;395(10234):1417-8.
11. Levi M, Scully M. How I treat disseminated intravascular coagulation. *Blood* 2018 Feb;131(8):845-54.
12. Onder G, Rezza G, Brusaferro S. Case-fatality rate and characteristics of patients dying in relation to COVID-19 in Italy. *JAMA*. 2020. doi: 10.1001/jama.2020.4683.
13. Anesi GL. Coronavirus disease 2019 (COVID-19): Critical care and airway management issues. Available from: <https://www.uptodate.com/contents/coronavirus-disease-2019-covid-19-critical-care-and-airway-management-issues>.
14. Maves RC, Downar J, Dichter JR, et al. Triage of scarce critical care resources in COVID-19 an implementation guide for regional allocation: an expert panel report of the task force for mass critical care and the American college of chest physicians. *Chest*. 2020; S0012-3692(20)30691-7. doi: 0.1016/j.chest.2020.03.063.