COVID-19 НИНГ КЛИНИК ТАВСИФИ ВА УНИНГ КЕЧИШИНИ БЕЛГИЛОВЧИ ПРЕДИКТОРЛАР

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Аннотация. COVID-19 нинг симптомсиз ва енгил шаклларида беморларга нисбатан, амбулатория кузатуви ҳамда эпидемиологик нуқтаи назардан тиббий тадбирлар мажмуаси йўлга қўйилиши кифоя қилса, оғир ҳолатларда нафақат стационар шароитида даволаниш, балки интенсив терапия, хос реаниматологик ёрдам, сунъий нафас олдириш каби муолажалар мажмуасини ташкиллаштириш ва қўллаш талаб этилади.

Калит сўзлар: Коронавирус, клиник, иммуногенлик, эпидемиология, профилактика.

CLINICAL FEATURES OF COVID-19 AND PREDICTORS OF DISEASE PROGRESSION

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Abstract. In asymptomatic and mild forms of COVID-19, outpatient monitoring and a set of medical measures from an epidemiological perspective are sufficient. In severe cases, not only inpatient treatment but also organization of

intensive care procedures, specialized resuscitation support, and mechanical ventilation are required.

Keywords: coronavirus, clinical, immunogenicity, epidemiology, prevention.

Not only in Uzbekistan, but also worldwide, including highly developed countries, the traditional capacities for providing intensive care faced a difficult situation and experienced serious challenges in the face of the unprecedented surge of patients requiring such care during the COVID-19 pandemic.

Therefore, it is of critical importance to classify patients according to the severity of the disease, identify symptoms characterizing the clinical course, determine factors indicating deterioration, and, in particular, identify new predictors of severe disease. Equally important is to conduct a thorough analysis, clarify the essence (mechanisms) of these processes, influence them to a certain extent, implement preventive measures, eliminate these factors as much as possible, select appropriate therapeutic interventions, properly organize intensive and critical care, and successfully implement these measures in order to reduce the frequency of adverse outcomes of the disease.

According to the analysis, although the proportion of men in the population of Samarkand region (44.9%) was lower than that of women (55.1%), the higher share of men was observed not only among individuals infected with COVID-19 but also among patients admitted to the ICU. This indicates that male patients belong to a risk group both in terms of susceptibility to infection and in terms of the severity of the clinical course of the disease.

It should be noted that this sex-related difference was even more pronounced among patients admitted to the ICU compared to the overall gender composition of individuals infected with COVID-19. Specifically, among all COVID-19 patients, the proportion of men was 53.5% compared to 46.5% for women (1.1 times higher), whereas among COVID-19 patients treated in intensive care and critical care units, the proportion of men was 56.5% compared to 43.5% for women (1.3 times higher).

Per 1,000 COVID-19 patients of the respective sex, the intensive care admission rate was 306.7 ± 12.6 for men and 271.0 ± 13.0 for women ($p < 0.05$). Analyses conducted to assess risk factors also showed that COVID-19 progressed more severely in men than in women. The absolute risk of ICU admission was 0.31 for men and 0.27 for women, with a relative risk of 1.15. Thus, according to our study, male sex increases the risk of ICU admission among COVID-19 patients by 11.5%.

Since patients in severe and critical condition require treatment in the ICU, it is appropriate to separately analyze the overall characteristics of these patients based on demographic, clinical, laboratory, and instrumental data to identify predictors of severe courses of SARS-CoV-2-related conditions, including pneumonia, and to assess the prognostic value of the obtained indicators.

Analysis of COVID-19 patients hospitalized in the ICU according to premorbid conditions showed an average body mass index of 29.3 kg/m². Most of these patients had comorbidities such as arterial hypertension (43.1 ± 1.8%), ischemic heart disease (29.0 ± 1.7%), and diabetes mellitus (28.2 ± 1.7%). A portion of patients had a history of chronic gastrointestinal diseases (15.3 ± 1.3%), cerebrovascular disorders (12.6 ± 1.2%), pulmonary diseases (10.0 ± 1.1%), and chronic liver and biliary tract diseases (7.0 ± 0.9%).

According to our study, the frequency of kidney diseases, oncological pathology, tuberculosis, and alcohol abuse among COVID-19 patients did not differ significantly from the average statistical indicators in the population over 30 years of age. Overall, 595 patients (81.8 ± 1.4%) had various premorbid pathological conditions, including 266 (36.6 ± 1.8%) with a single pathology and 329 (45.2 ± 1.8%) with two or more pathologies. Of these, 510 patients (70.1 ± 1.7%) were registered at local family polyclinics for premorbid conditions.

Thus, 85 patients (11.7 ± 1.2%) had premorbid pathological conditions but were not registered at medical institutions. Among ICU patients, 132 individuals (18.2 ± 1.4%) did not have clearly expressed premorbid pathology.

Instrumental examination results of COVID-19 patients hospitalized in the intensive care and critical care units (Samarkand region, 2020, N=727) indicate that chest radiography and computed tomography play a key role in diagnosis and dynamic assessment. The data show that all COVID-19 patients admitted to the ICU experienced respiratory failure, manifested by decreased blood oxygen saturation, with a median SpO_2 of 87.0% (range from 81.0% to 90.0%). Chest computed tomography in the majority of patients showed severe lung tissue damage: 42.8% of patients had grade 3 damage, and 37.6% had grade 4 damage. Additionally, analysis of radiological materials revealed another important aspect: in 133 patients with initially negative PCR results for SARS-CoV-2, signs of pneumonia were detected on chest imaging, and repeat PCR testing in all these cases yielded positive results. According to echocardiography (EchoCG) data, conducted as part of the primary screening of patients, a decrease in left ventricular ejection fraction (LVEF) (55.0%) and an increase in pulmonary artery systolic pressure (PAP) (37 mm Hg) were observed.

Among ICU patients, 417 individuals (57.4 ± 1.8%) remained in the prone position for more than 17 hours per day, and 167 patients (23.0 ± 1.6%) received high-flow oxygen therapy.

Additionally, 143 patients (19.6 ± 2.2%) underwent respiratory support using mechanical ventilation. Among the 33 patients (23.1 ± 3.5%) who received mechanical ventilation, the use of muscle relaxants was required.

The initial condition at ICU admission of patients who required mechanical ventilation—those without independent respiratory activity (143 patients)—was compared with patients who did not require it, i.e., those with preserved independent respiratory activity (584 patients). Significant differences were found in nearly all compared indicators between these groups.

In the group receiving mechanical ventilation, the average age (66 vs. 53 years), body mass index (29.2 vs. 27.8 kg/m²), and proportion of men (68.5% vs. 53.6%) were higher compared to the non-ventilated group. Among patients who

underwent mechanical ventilation, the prevalence of comorbidities was also significantly higher than in the comparison group: ischemic heart disease (33.6% vs. 27.9%), arterial hypertension (57.3% vs. 39.6%), chronic liver and biliary tract diseases (9.1% vs. 6.5%), diabetes mellitus (58.0% vs. 20.9%), chronic lung diseases (14.7% vs. 8.9%), gastrointestinal diseases (19.6% vs. 14.2%), cerebrovascular diseases (18.2% vs. 11.3%), and obesity (8.4% vs. 3.4%).

In the group of patients receiving respiratory support via mechanical ventilation, pronounced lymphopenia (0.7 × 10^9/L) and a high neutrophil-to-lymphocyte ratio (8.5) were observed. Upon ICU admission, patients in the mechanical ventilation group had significantly elevated D-dimer levels (0.66 μg/mL) and C-reactive protein (105 mg/L), while oxygen saturation measured by pulse oximetry was low (83.0%). These patients were placed in the prone position more frequently and for longer durations to improve oxygenation.

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