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CLINICAL CONDITION OF PATIENTS WITH SARS-CoV-2 PNEUMONIA AND TYPE 2 DIABETES

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✓ ***Resume***

The clinical condition of patients with SARS CoV-2 pneumonia and type 2 diabetes mellitus was studied. In the study, 103 patients hospitalized with SARS CoV-2 pneumonia at the Bukhara Regional Infectious Diseases Hospital, which was converted into a Covid-center, were involved. The clinical symptoms of patients included in the study were compared. Clinical signs include wheezing, shortness of breath, nasal congestion, chest pain, dry cough, paroxysmal cough, general weakness, decreased appetite, fatigue, headache, dizziness, myalgia and parameters such as arthralgia, nausea or vomiting, nausea, anosmia, diarrhea, profuse sweating, sore throat.

Key words: SARS CoV-2, diabetes type 2, pneumonia.

SARS-COV-2 PNEVMONIYA VA 2-TIP QANDLI DIABET BILAN KASALLANGAN BEMORLARNING KLINIK HOLATI

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✓ ***Rezyume***

SARS CoV-2 pnevmoniyasi va 2-tip qandli diabet bilan kasallangan bemorlarning klinik holati o‘rganildi. Tadqiqotda Kovid-markaziga aylantirilgan Buxoro viloyat yuqumli kasalliklar shifoxonasida SARS CoV-2 pnevmoniyasi bilan kasalxonaga yotqizilgan 103 bemor jalb qilindi. Tadqiqotga jalb qilingan bemorlarning klinik belgilarning uchrashi o‘zaro taqqoslab chiqildi. Klinik belgilar sifatida hansirash, nafas qisishi, burun bitishi, ko‘krak qafasida og‘riq, quruq yo‘tal, xurujsimon yo‘tal, umumiy xolsizlik, ishtaxaning pasayishi, tez charchash, bosh og‘rig‘i, bosh aylanishi, mialgiya va artralgiya, ko‘ngil aynishi yoki qusish, oznob, anosmiya, diareya, ko’p terlash, tomoqda og‘riq kabi parametrlar o‘rganildi.

Kalit so‘zlar: SARS CoV-2, qandli diabet 2-tip, pnevmoniya.

КЛИНИЧЕСКОЕ СОСТОЯНИЕ ПАЦИЕНТОВ С ПНЕВМОНИЕЙ SARS-CoV-2 И САХАРНЫМ ДИАБЕТОМ 2 ТИПА

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✓ ***Резюме***

Изучено клиническое состояние больных пневмонией SARS CoV-2 и сахарным диабетом 2 типа. В исследовании приняли участие 103 пациента, госпитализированных с пневмонией SARS CoV-2 в Бухарскую областную инфекционную больницу, преобразованную в Ковид-центр. Проведено сравнение клинических симптомов пациентов, включенных в исследование. Клинические признаки включают свистящее дыхание, одышку, заложенность носа, боль в груди, сухой кашель, приступообразный кашель, общую слабость, снижение аппетита, быструю утомляемость, головную боль, головокружение, миалгию и такие параметры, как артралгия, тошнота или рвота, тошнота, аносмия, диарея. обильное потоотделение, боль в горле.

Ключевые слова: SARS CoV-2, диабет 2 типа, пневмония.

Relevance

Against the backdrop of the COVID-19 pandemic, an increase in the number of deaths across all countries has been recorded. In this context, specific groups of patients have been identified, where the death rate significantly exceeds the average statistical indicators. One such group includes patients with diabetes mellitus (DM). Numerous studies conducted in various countries have demonstrated that patients suffering from DM are at a higher risk of contracting the COVID-19 infection, as well as experiencing more severe disease progression and a higher mortality rate [1,5].

Patients with type 2 diabetes mellitus (T2DM) are among the most vulnerable groups of COVID-19 patients. Compared to patients without a history of diabetes, those with type 2 diabetes have a mortality rate that is twice as high, and among those who die, women are more prevalent. Patients with type 2 diabetes have a higher frequency of associated comorbidities (such as CVD, CKD, obesity), and compared to those without diabetes, they experience a more severe course of COVID-19, characterized by a higher rate of ICU admissions and a 1.3 times greater likelihood of requiring mechanical ventilation. Compared to cardiovascular diseases, coronary artery disease (CAD), and chronic kidney disease (CKD), hypertension (HTN) has the greatest significance in the mortality risk of patients with type 2 diabetes mellitus (T2DM). In patients with type 2 diabetes, the mortality risk is identified at an earlier age compared to individuals without diabetes (66 years vs. 71 years). According to the ROC analysis of key indicators reflecting the severity of COVID-19 (such as CRP, LDH, and D-dimer), the cutoff points in the group with type 2 diabetes are lower compared to the control group [2,3,6].

Studies conducted in Uzbekistan have shown that COVID-19 was responsible for 6.7% of deaths. The COVID-19 pandemic has caused a significant 1.5-fold increase in mortality among patients with diabetes mellitus (DM), primarily due to acute cardiovascular events and the progression of chronic complications associated with diabetes [4,7].

Research objective: Studying the clinical condition of patients with SARS-CoV-2 pneumonia and type 2 diabetes.

Materials and methods.

Taking into account the results of the above-mentioned study, a research was conducted on patients with type 2 diabetes and SARS-CoV-2 pneumonia to study the clinical condition of patients with the association of these conditions. The study involved 103 patients who were hospitalized with SARS-CoV-2 pneumonia at the Bukhara Regional Infectious Diseases Hospital, which was converted into a COVID center. Among those hospitalized with SARS-CoV-2 pneumonia in the context of type 2 diabetes, 35 patients with severe pneumonia (Group 1) and 33 patients with moderate pneumonia (Group 2) were included. The comparison group (Group 3) consisted of 35 patients with SARS-CoV-2 pneumonia without diabetes. The control group consisted of 30 healthy individuals of the same age.

The average age of patients in Group 1 was 60.2±2.2 years, in Group 2 it was 50.0±2.0 years, and in the comparison group, it was 52.4±2.0 years.

The average age in the control group was 54.0±2.0 years.

The average duration of hospitalization for patients was as follows: 8.7±0.47 days in Group 1, 6.4±0.26 days in Group 2, and 10.6±0.45 days in Group 3.

The virulence of SARS-CoV-2 is dependent on the spike protein (S protein) on the viral surface, which binds to the angiotensin-converting enzyme 2 (ACE2) receptors in human cells, allowing the virus to enter the cell. ACE2 receptors are present in the endothelial cells of blood vessels, as well as in the liver,

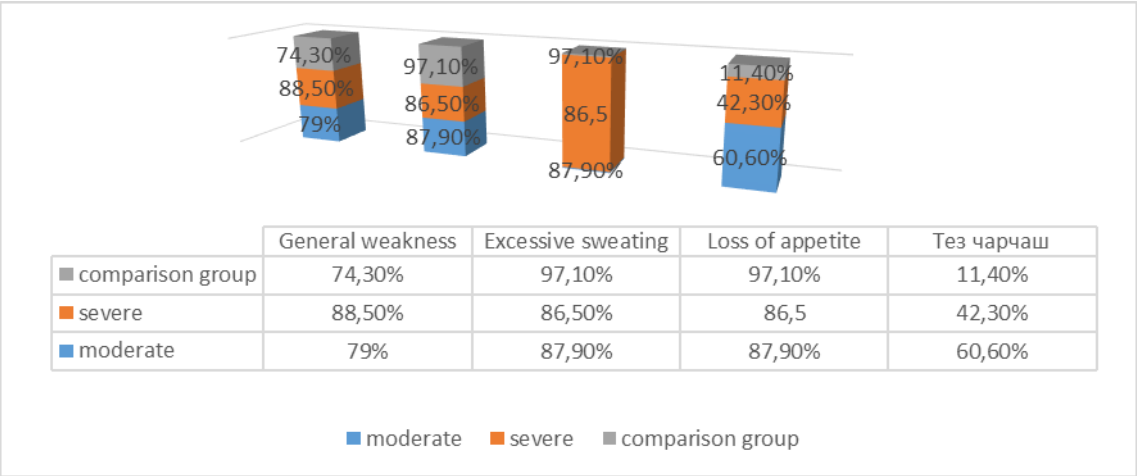
kidneys, lungs, gastrointestinal tract, bile ducts, and other tissues. As a result, infection affects these organs, leading to various clinical manifestations in patients. The clinical symptoms of the patients involved in the study were compared. The clinical symptoms examined included shortness of breath, difficulty breathing, nasal congestion, chest pain, dry cough, paroxysmal cough, general weakness, reduced appetite, fatigue, headache, dizziness, myalgia and arthralgia, nausea or vomiting, chills, anosmia, diarrhea, excessive sweating, and sore throat.

Table 1.

The occurrence of clinical symptoms in the study group of patients (%)

Clinical Symptoms	**main group**				**comparison group**		**Total (n=120)**	
	Moderate		**Severe**					
	abs	%	Abs	%	abs	%	abs	%
Shortness of breath	32	97	49	94,2	34	97,1	115	95,8
Breathing difficulty	21	63,6	35	67,3	1	2,9	57	47,5
Nasal congestion	1	3	1	1,9	0	0	2	1,7
Chest pain	9	27,3	13	25	24	68,6	48	38,3
Dry cough	26	78,9	42	80,8	31	88,6	99	82,5
Paroxysmal cough	4	12,1	10	19,2	5	14,3	19	15,8
General weakness	26	78,9	46	88,5	26	74,3	98	81,7
Reduced appetite	29	87,9	45	86,5	34	97,1	108	90
Fatigue	20	60,6	22	42,3	4	11,4	46	38,3
Headache	17	51,5	13	25	1	2,9	31	25,8
Dizziness	5	15,2	8	15,4	4	11,4	17	14,2
Myalgia and arthralgia	17	51,5	20	38,5	2	5,7	39	32,5
Nausea or vomiting	13	39,4	21	40,4	0	0	34	28,3
Chills	3	9,1	8	15,4	4	11,4	15	12,5
Anosmia	3	9,1	7	2,2	32	91,4	42	35
Diarrhea	0	0	0	0	0	0	0	0
Excessive sweating	29	87,9	45	86,5	34	97,1	108	90
Sore throat	8	24,2	12	23,1	5	14,3	25	20,8

When studying the occurrence rates of clinical symptoms such as general weakness, excessive sweating, reduced appetite, and fatigue in the examined group of patients, general weakness was found in 81.5% of the total patients, excessive sweating in 90%, and reduced appetite also in 90%, showing higher rates compared to the others.



One of the main clinical symptoms observed in the examined patients is shortness of breath. When analyzing the occurrence rate of this clinical symptom, shortness of breath was observed in 21 patients

(63.6%) in the moderate group, 35 patients (67.3%) in the severe group, and 1 patient (2.9%) in the comparison group. The highest occurrence rate was seen in the severe stage of SARS-CoV-2 pneumonia in patients with type 2 diabetes, reaching 67.3%. The next clinical symptom is shortness of breath, which was the most commonly observed among the patients under examination. A total of 115 patients (95.8%) exhibited this symptom. When analyzing the occurrence rate of shortness of breath, it was observed in 32 patients (97%) in the moderate group, 49 patients (94.2%) in the severe group, and 34 patients (97.1%) in the comparison group. As seen from the above, shortness of breath was significantly higher in the severe group, while shortness of breath was notably higher in the comparison group.

Dry cough and paroxysmal productive cough are considered key clinical symptoms observed in SARS-CoV-2 pneumonia. Dry cough was observed in 99 patients (82.5%) of the total cases, while paroxysmal productive cough was observed in 19 patients (15.8%). Notably, out of the 19 patients with paroxysmal productive cough, 10 patients were from the severe group.

Nasal congestion was rarely observed in the examined patients. According to the analysis, this clinical symptom was found in 1 patient (3.0%) in the moderate group, 1 patient (1.9%) in the severe group, and was not observed in the comparison group. Chest pain is another key symptom observed in SARS-CoV-2 pneumonia. The analysis of this symptom showed that it was observed in 48 patients (38.3%) of the total, of which 24 patients were from the comparison group. Chest pain was noted in 27.3% of patients in the moderate group and in 25% of patients in the severe group.

It is known to us that SARS-CoV-2 infection affects various organs and systems, including the nervous system. As a result of the virus's impact on this system, clinical symptoms such as headache, dizziness, anosmia, myalgia, and arthralgia are observed. These clinical signs were also recorded in the patients involved in the study. Among patients with SARS-CoV-2 pneumonia combined with type 2 diabetes, the clinical signs of headache, arthralgia, and myalgia were significantly more frequent. Therefore, we can include it among the main symptoms of the disease. Among the patients examined, headache was observed in 17 patients (51.5%) with moderate disease, 13 patients (25%) with severe disease, and 25.8% of the total control group. The highest occurrence of headache was recorded in the moderate group (Group 2). When studying the clinical sign of dizziness, a significantly lower occurrence was noted. This clinical sign was recorded in 17 patients (14.2%) in total.

A total of 39 patients (32.5%) in the examined group complained of myalgia and arthralgia. Of these, 17 patients (51.5%) were from the moderate group, 20 patients (38.5%) were from the severe group, and 2 patients (5.7%) were from the comparison group.

Anosmia is considered a significantly common clinical symptom among patients infected with COVID-19. In our study, 42 patients (35%) exhibited this clinical sign.

SARS-CoV-2 infection has also affected the gastrointestinal system (GI) among other organs and systems. The clinical signs resulting from this system's involvement include nausea, vomiting, and diarrhea. Nausea and vomiting were observed in 34 patients (28.3%) in the study group. This clinical sign was not observed in the comparison group. Among the patients in the moderate group, 21 patients (40.4%) complained of nausea and vomiting, while in the severe group, 13 patients (39.4%) reported the same symptoms. Interestingly, diarrhea was not observed in any of the patients involved in our study.

It is known that excessive sweating is also considered a key symptom of coronavirus infection. Among the patients involved in the study, 108 patients (90%) complained of excessive sweating. Of these, 29 patients (87.9%) were from the moderate group, 45 patients (86.5%) were from the severe group, and 34 patients (97.1%) were from the comparison group.

Conclusion

Among the symptoms observed in the examined groups, shortness of breath was found in 95.8% of patients, excessive sweating in 90%, reduced appetite in 90%, and dry cough in 82.5% of patients, showing higher occurrence rates compared to other clinical signs.

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