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Laboratory indicators of chronic obstructive pulmonary disease depending on coronavirus infection

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ABSTRACT
Issues related to the topic of the joint course of the new coronavirus infection COVID-19 and chronic obstructive pulmonary disease (COPD) are currently very relevant. This is due to the similarity of clinical manifestations, the complexity of diagnosis. COPD patients with comorbid diseases infected with SARS-CoV-2 represent a particularly vulnerable group of people with a complicated course and often an unfavorable outcome of the disease. In the light of the above, the study of laboratory parameters features of the course and risk factors of cardiovascular complications, the development of effective methods of treatment and rehabilitation of patients with COPD in combination with metabolic syndrome against the background of COVID-19 remains an urgent problem
Key words: *chronic obstructive pulmonary disease, laboratory parameters , coronavirus infection.*

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INTRODUCTION

Questions related to the topic of the joint course of the new coronavirus infection COVID-19 and chronic obstructive pulmonary disease (COPD) are currently very relevant (2,5,9) This is due to the similarity of clinical manifestations, the complexity of diagnosis. COPD patients with comorbid diseases infected with SARS-CoV-2 represent a particularly vulnerable group of people with a complicated course and often an unfavorable outcome of the disease. Comorbidity in COPD, especially against the background of COVID-19, increases the risk of developing cardiovascular complications, worsens the quality of life, negatively affects the prognosis and mortality (1,4,8,12). Only a few works are devoted to a comprehensive study of the comorbid course of COPD and metabolic syndrome (MS) (3,6,7,11). Many private issues related to clinical and functional features, immune disorders, in COPD in combination with the metabolic syndrome against the background of COVID-19 have not been studied, which does not allow a comprehensive assessment of this comorbid pathology, individualization of the prognosis and effective treatment and prevention measures. To study laboratory indicators of chronic obstructive pulmonary disease depending on the transferred coronavirus infection.

MATERIAL AND METHODS

In the Department of Allergology and Pulmonology of the Central City Hospital, 60 patients with a history of coronavirus infection with COPD were examined. The examined patients had bronchitis and emphysematous variant of COPD, mild, moderately severe or severe course of the disease, which corresponded to the objectives of the study. When making a diagnosis, patients' complaints, the history of the disease, heredity, and the course of the disease were taken into account. All patients were diagnosed with broncho-obstructive syndrome with a negative reaction to the bronchodilator test.
Of the total number of patients, 21 had moderate course (group I) and 39 patients had severe COPD (group II). The average age of the patients was 65 years. The disease was most often detected in persons aged 55-70 years, men (61.67%) and women (38.33%), which corresponds to the literature data. Patients with a disease duration of more than 10 years (75%) were selected . Of the number of registered patients, only 20.0% were registered in medical institutions due to their illness.

Statistical Analysis

All statistical processing of the results obtained was performed using the Statistic for Windows 7.0 (StatSoft) software package , Microsoft Excel 2007 software , using parametric and nonparametric analysis methods. The results of sampling studies using parametric methods are presented as M (mean value) ± m (standard error). The reliability of the results obtained was assessed by Student's t-test (t) for dependent and independent samples, the difference was considered statistically significant at $p < 0.05$.

RSEULTS AND DISCUSSION

In groups with there was a tendency to increase the level of hemoglobin: group I - 147.1±12.1 g/l, group II - 131.5±19.7 g/l - significant differences between groups - p>0.05. At the same time, the hematocrit was significantly (p <0.05) higher in group I , that is, in the group of patients with COPD with a history of coronavirus infection. In II group hematocrit was 44.3±3.1% .

The values of the level of erythrocytes did not differ significantly and amounted to 4.6±0.3 x 10^{12} / **L IN GROUP** I ; in group ^{II} - 3.8 ± 0.6 x 10^{12} / l / The number of platelets did not differ significantly / l. (p>0.05). The level of leukocytes also did not differ in different groups: II group 8.6 ± 2.8 X 10^{9} /l, group I - 9.1 ± 3 X 10%. (see table 1).

Table 1. Average values of indicators of the general clinical blood test

Indicators of the general blood test	1 group	2 group	p>
hemoglobin	147,1±12,1	131,5±19,7	0.05
Erythrocytes, 1012\l	4.6±0.3	3,8±0.6	0.05
Leukocytes 109\ l	9,1±3.0	8.6±2,8	0.05
ESR. мм\ hour	19.6±4,1	16,4±5.3	0.01

*Notes: significance of differences * p < 0.05 between groups.*

The analysis of the results showed that in patients who underwent COVID -19, the level of fibrinogen as an acute phase protein is most often measured (100% of cases). APTT and prothrombin were used much less frequently (APTT in 38%, prothrombin in 56% of cases) among patients who were taken for retrospective analysis. Hypercoagulability was detected in 48% of cases on the prothrombin test and in 62% of cases on the APTT test. (see table 2).

Table 2. **Results screening laboratory indicators of the hemostasis system , Me (Q1; Q3)**

Index	reference interval	1 group	2 group	p>-
		Me (Q1;Q3)	Me (Q1;Q3)	
fibrinogen	2,0-4,0 hmm	5,0 (4,4;5,9)	7,1 (6,5;7,8)	0,001
d-dimer	0-0,5 mcg\ ml	1,23 (0,42; 1,89)	1,76 (0,84;3,2)	0,001
Platelets	150-400 x 109\l	304,5 (248;400)	423(372;452)	0,001
APTT	28-40 seconds	36,2 (33,2; 39,6)	45,3 (39,2;48,9)	0,005
Prothrombin	70-120 %	102 (90;112)	119,5 (90;130)	0,01

level of AST was significantly different , which was higher in group I ; no other significant differences were found (Table 3).

Table 3: **Biochemical indicators of blood**

Index	1 group	2 group
Cholesterol	6,6± 1,4	5,8±1,4
bilirubin	14,0±2,6	12,2±7,0
ALT	40,1±24,9	27,1±15,6
AST	41,6±29,1*	30,3±20,2
Prothrombin	79,7±42,1	86,8±41,1
Glucose	7,4±1,9	6,6±7,3
Creatinine	0,08±0,01	0,08±0,01

*Note: significance of differences * p < 0.05 - between groups 1 and 3.*

Patients I groups had significantly lower levels of oxygen partial pressure and oxygen saturation in the morning hours.

Patients of group I were distinguished by significantly lower levels of PO^{2} (p = 0.001), and the azoic blood composition in all groups was in the following ratio: in j Group II 61.7 ± 4.7 mm Hg, in group I 57.4 ± 7.5 mm Hg. group I also had a higher level PCO^{2} in the morning . Thus , patients with a history of coronavirus infection had significantly lower levels of PO2 (p = 0.001), as well as higher levels of PCO2 in the morning. (Table 4).

Table 4: Indicators of acid-base balance of blood

Index	1 group	2 group
PO ^{2} mm rt	57,4 ±7,5	61,7± 4,7
PCO ^{2} mm rt	48,1± 10,6	45,5 ±5,1
AB mmol\l	5,3± 3,4	3,8± 1,9
HCO ^{3} mmol\l	31,4± 4,1	29,1± 2,4

bicarbonate (HCO ^{3}), partial pressure of oxygen (Po ^{2}), AB (mmol / l) - true blood bicarbonates (aktual bicarbonate);

Thus, the obtained results are in accordance with the research data of a number of domestic and foreign authors, modern scientific concepts, and the results of one-way ANOVA and correlation analysis.

CONCLUSIONS

1. In almost all patients (87.9%), laboratory results showed inflammatory conditions. These indicators can also be observed on the basis of changes in the general blood test and biochemical parameters.

2. Thus, for COPD patients with concomitant past coronavirus infection is characterized by a statistically significantly more severe course of the underlying disease and significant changes in laboratory parameters were shown.

The steady increase in the incidence of obstructive pulmonary diseases in the population and the severity of their clinical course with the development of complications pose problems for modern medicine to - develop new approaches to early diagnosis and increase the effectiveness of the treatment of these diseases. In this regard, the developing transferred coronavirus is an urgent problem. infections, laboratory changes in the blood in COPD and their timely correction.

REFERENCES

1. Mamurova N.N., Nosirova D.E. (2021). The severity of the course of community-acquired pneumonia depending on the professional factor // Experience and prospects for the development of the export potential of educational services in higher education. S. 167-170.
2. Chuchalin A.G., Avdeev S.N., Aisanov Z.R., Belevsky A.S., Leshchenko I.V., Ovcharenko S.I., Shmelev E.I. (2022). Chronic obstructive pulmonary disease: federal clinical guidelines for diagnosis and treatment. Pulmonology. 32(3):356-392.
3. Kholzhigitova M. B., Ubaydullaeva N. N. (2022). Features of the course of sleep apnea syndrome in patients with chronic obstructive lung disease . Journal of Cardiorespiratory Research. Volume 3 No. 4.. http://dx.doi.org/10.5281/zenodo.7366224 pp. 83-86.
4. Kholzhiitova M. B., Ubaydullaeva N. N. (2021). General characteristics of patients with chronic obstructive pulmonary disease, metabolic syndrome. Oriental journal of medicine and pharmacology doi : https://doi.org/10.37547/supsci-ojmp-02-06-03 21 -29.
5. Kholzhiitova M. _ B. , Ubaydullaeva H.(2021) column obstructive lungs disease With damage in patients functional parameters change And exercises endurance . Eastern Journal of Biology and Chemistry, Issue 5. 799. pp. 14-18 . doi : https :// doi . org /10.37547/ supsci - ojbc -02-03-03.
6. M. B. Kholzhigitova , Kh. M. Tashmetov , and N. N. Ubaidullaeva, Russ. (2022). Tobacco addiction in young people , ways of optimization and prevention. Samarkand State Medical Institute. Journal of Cardiorespiratory Research #1.1: doi http://dx.doi.org/10.26739/2181-0974-2022-1str 67
7. Kholzhigitova M.B., Okboev T.A.(2022). Assessing the importance of genetic testing in the early diagnosis of asthma in the family. Samarkand State Medical Institute. Journal of Cardiorespiratory Research No. 2.1 doi http://dx.doi.org/10.26739/2181-0974-2022-2.1str 268.
8. Kholzhigitova Muhayo Berdikulovna. (2020). The state of changes in the immune system in patients with chronic obstructive bronchitis and the effect of immunotherapy on the dynamics of immunological parameters. Journal of Critical Reviews. Volume 7, issue 14, 2020.
9. Kholzhigitova M.B., Safarova M.P., Yuldasheva D.A., Klebleeva G.D. (2021). Indicators of inflammation markers in patients with chronic obstructive bronchitis and the effectiveness of immunocorrective and antioxidant therapy. Annals of the Romanian Society for Cellular Biology ISSN 15836258. Volume 25, Issue 4, 2021, pages 13380-13387.
10. Kholzhigitova M.B., Safarova M.P. (2022). Endoscopic signs of the mucous membrane depending on the severity of the course in chronic obstructive pulmonary disease. Thematic journal of education. Page 35-45.2022.
11. Kholzhigitova M.B., Safarova M.P.(2012). Features of the course of sleep apnea syndrome in patients with chronic obstructive pulmonary disease. Environmental Research. Page 41-50.
12. Avdeev S.N. (2013). Acute exacerbation of chronic obstructive pulmonary disease. Pulmonology . (3):5-19.

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