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Clinical and Epidemiological Characteristics of Comorbid Lesions of Internal Organs in Covid-19 Associated Forms of Pulmonary Tuberculosis

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Abstract

According to the World Health Organization (WHO) for 2019, 10 million people in the world are infected with tuberculosis, including 5.6 million men, 3.2 million women and 1.2 million children. It is estimated that 1 million children worldwide suffer from tuberculosis every year. The reduction in the incidence rate from 2015 to 2019 was 9%, and the global goal for 2030 was 80%. Therefore, the main task of anti-tuberculosis and practical work is to prevent the development of tuberculosis lung lesions, including in comorbidity and especially against the background of the pandemic growth of COVID-19 among the population. Only on the basis of screening and "targeted" formation of groups of low, medium, high and very high risk of COVID-19 patients for tuberculosis lung lesions and modern implementation of primary, secondary or tertiary prevention measures can solve this currently extremely urgent task.

In this article, it was concluded that in the absence of clinical manifestations of an active form of tuberculosis infection, there is a constant state of immunoassay caused by the presence of mycobacterium tuberculosis antigens in the body, there is no "gold standard" diagnosis that allows a direct method to identify an infection in which mycobacterium tuberculosis occurs in humans, most infected individuals do not have It is believed that Lti is 10% probability of transition to active tuberculosis, 5% in the first two years of infection and 5% for the rest of a person's life.

In addition, the article emphasizes that the placement of persons who, as is known from mathematical models, about 30% of the

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	world's population are considered carriers of lti, who are at risk of developing active tuberculosis for the detection and preventive treatment of persons with lt, is very important for the elimination of the disease..
Keywords: COVID - 19, tuberculosis lung lesions, clinical and epidemiological characteristics.	

Introduction

The aim of the study was to study the clinical and epidemiological characteristics and prognostic and preventive aspects of tuberculous lung lesions in COVID-19 infection.

Materials and methods: The object of the study 1499 patients with COVID-19 (PCR+- 239 and PCR-1260), having broken through and "undergone examination" were treated at the hospitals/clinics of the "Fergana Regional Medical Centers of Phthisiology and Pulmonology" and COVID centers.

The subject of the study The medical history, physical data, risk factors, instrumental and biochemical data, results of the questionnaire examination and report forms No. 8 ("Information on active tuberculosis cases"), No. 003/u ("Medical record of a rational patient") and No. 060 ("Journal of registration of infectious diseases") were included.

Research Methods

The study of pain used epidemiological, survey, instrumental, functional research methods, and statistical analysis.

Results and discussion. We studied, assessed and identified the clinical and epidemiological characteristics of comorbid lesions in destructive and other forms of pulmonary tuberculosis in the Fergana region. The data obtained in this regard are presented in Table 1 and Fig. 1.

Table 1. Epidemiology of comorbidity in destructive and other forms of pulmonary tuberculosis in the Fergana region

Characteristics of comorbidity	Destructive TB		Other forms TB		P
	N	%	n	%	
Type 2 diabetes mellitus	20	13	131	87,0	<0,001*
Do not have diabetes	187	27,0	516	73,0	
COPD	119	50,0	117	50,0	<0,001*
Do not have COPD	**88**	14,0	**530**	86,0	
Gastritis and duodenitis	**10**	**30,0**	**23**	**70,0**	<0,001*
Do not have gastritis and duodenitis	197	24,0	624	76,0	
Anemia	42	22,0	153	79,0	<0,001*
Do not have anemia	165	25,0	494,0	75,	
Arterial hypertension	1	14,0	6,0	86,0	<0,001*
Do not have hypertension	206	24,0	641,0	76,0	
Chronic hepatitis B	3	50,0	3,0	50,0	<0,001*
Do not have hepatitis B	204	24,0	644,0	76,0	

* significant factors

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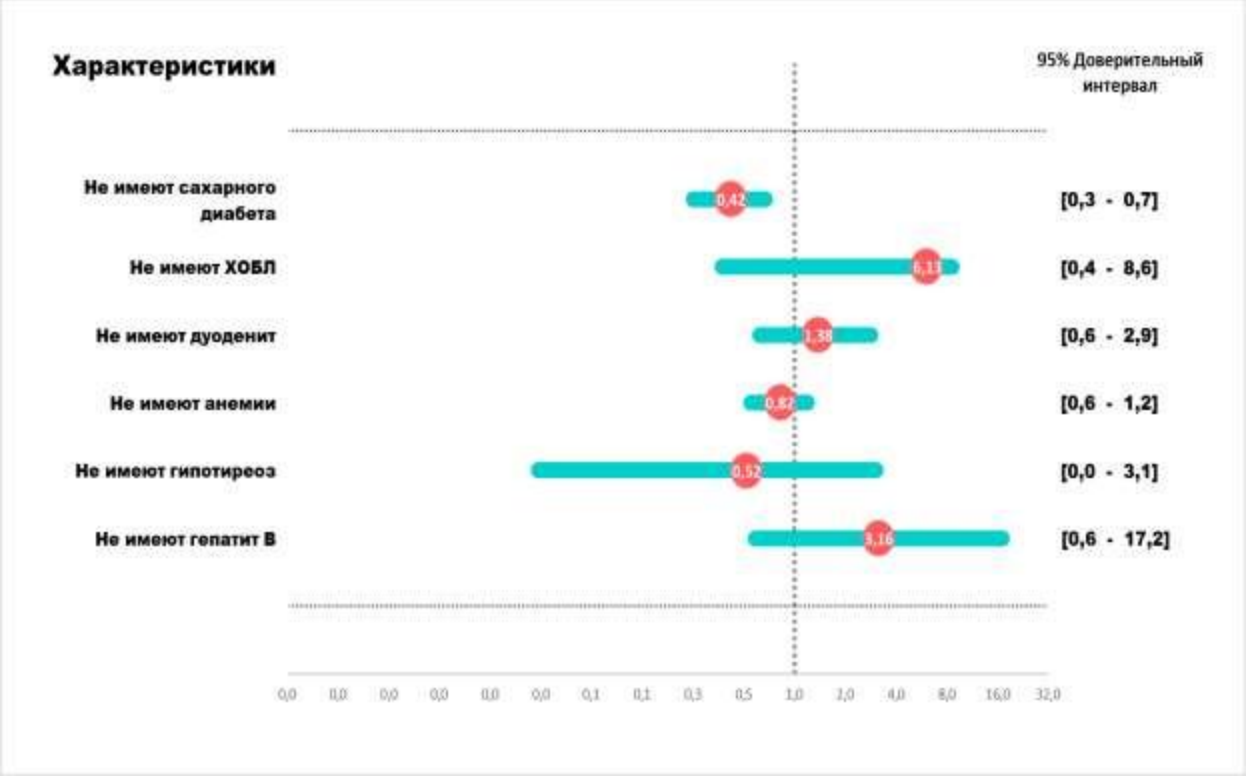

Fig. 1. Clinical and epidemiological characteristics of comorbid lesions in COVID-19 associated destructive pulmonary tuberculosis.

Table 2 Epidemiology of comorbidity in inflammatory and other forms of pulmonary tuberculosis in the Fergana region

Characteristics of comorbidity	Destructive TB		Other forms TB		P
	N	%	n	%	
Type 2 diabetes mellitus	131	13	131	87,0	<0,001*
Do not have diabetes	187	27,0	516	73,0	
COPD	119	50,0	117	50,0	<0,001*
Do not have COPD	**530**	86,0	**88**	14,9	
Gastritis and duodenitis	23	70,0	10	30,0	<0,001*
Do not have gastritis and duodenitis	624	76,0	197	24,0	
Anemia	153	79,0	42	22,0	<0,001*
Do not have anemia	494	75,0	165	25,0	
Arterial hypertension	6	86,0	1	14,0	<0,001*
Do not have hypertension	641	76,0	206	24,0	
Chronic hepatitis B	3	50,0	3	50,0	<0,001*
Do not have hepatitis B	644	76,0	204	24,0	

* significant factors

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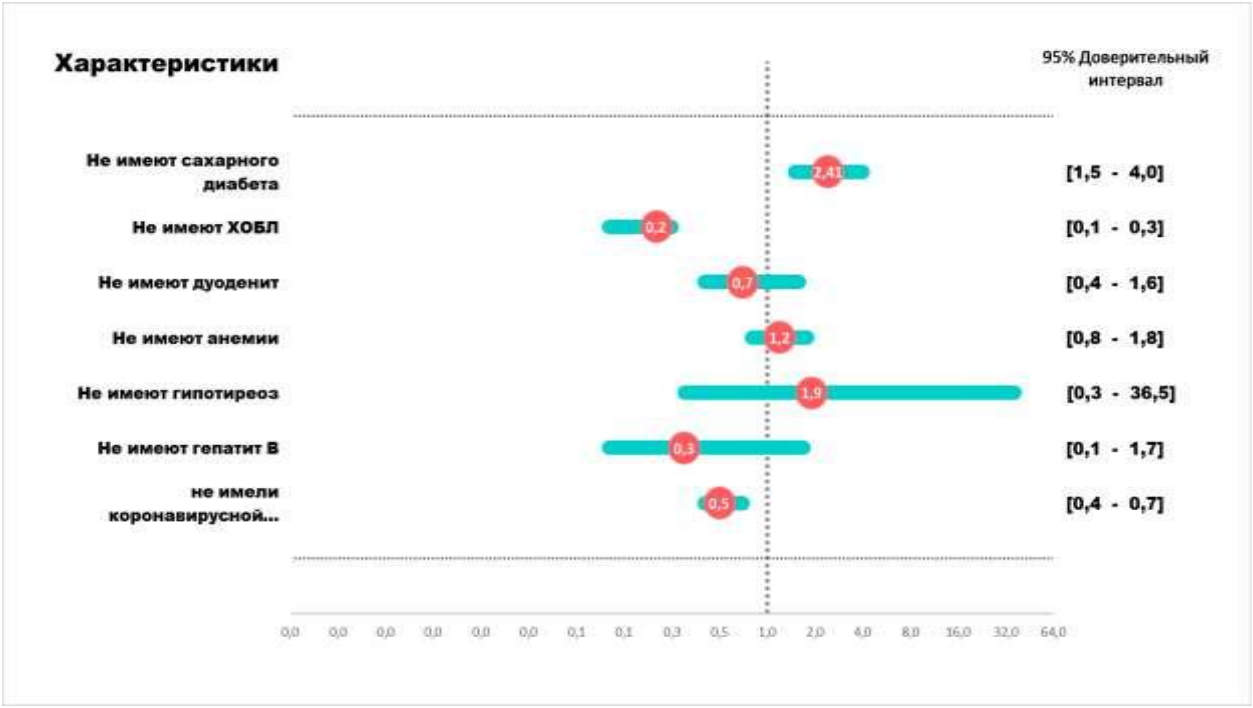

Fig. 2. Clinical and epidemiological characteristics of comorbid lesions in COVID-19 associated inflammatory and other forms of TB

In destructive and other forms of pulmonary tuberculosis, the following comorbid pathologies were detected, which differ in detection frequencies as follows: type 2 diabetes mellitus (T2DM) - 13.0% and 87.0% ($P < 0.001$), chronic obstructive pulmonary diseases (COPD) - 50.0% and 30.0% ($P < 0.001$), gastroduodenitis - 30.0% and 70.0 (<P 0.001, anemia - 22.0%), and 79.0% ($P < 0.001$), arterial hypertension - 14.0% and 86.0% ($P < 0.001$) and chronic hepatitis - 50.0% and 50.0%, respectively ($P < 0.001$).

In general, as can be seen from Fig. 1., in destructive pulmonary tuberculosis, as well as in other forms of tuberculosis, there are e types of comorbidity. In destructive TB, COPD, chronic hepatitis B and gastroduodenitis are determined as a comorbid background with high frequency. Compared to them, anemia is observed 2 times less frequently and T2DM and AG are confirmed with the lowest prevalence (3.5 times). In other forms of TB, a type of comorbid diseases, T2DM, gastroduodenitis, anemia and AG are observed with a relatively high frequency.

The epidemiology of comorbidity in infiltrative forms of TBL in the Fergana region is given in Table 2 and Fig. 2.

From the data in Table 2 and Fig. 2., that comorbid lesions in inflammatory and other forms of pulmonary tuberculosis are confirmed in the following forms and frequencies of prevalence, respectively: type 2 diabetes - 87.0% and 13.0% ($P < 0.001$), COPD - 50.0% and 50.0% ($P < 0.001$), gastroduodenitis - 70.0% and 30.0% ($P < 0.001$), anemia 79.0% and 22.0% ($P < 0.001$), arterial hypertension - 86.0% and 14.0% ($P < 0.001$) and chronic hepatitis B - 50.0% and 50.0% ($P < 0.001$). There is a high percentage of comorbidity in inflammatory pulmonary tuberculosis, especially type 2 diabetes. arterial hypertension, anemia and gastroduodenitis.

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Table 3. Epidemiology of comorbidity in recurrent newly diagnosed pulmonary tuberculosis among the population of the Fergana region

Characteristics of comorbidity	Destructive TB		Other forms TB		P
	N	%	n	%	
Type 2 diabetes mellitus	170	78,0	49,0	22,0	<0,001*
Do not have diabetes	893	83,0	185	17,0	
COPD	290	92,0	26	8,0	<0,001*
Do not have COPD	**773**	79,0	**208**	21,0	
Gastritis and duodenitis	49	68,0	23	32,0	<0,001*
Do not have gastritis and duodenitis	1014	83,0	147	22.0	
Anemia	239	79,0	63	21	<0,001*
Do not have anemia	824	83,0	171	17	
Arterial hypertension	12	75,0	4	25,0	<0,001*
Do not have hypertension	1051	82,0	230	18	
Chronic hepatitis B	14	82,0	3	18,0	<0,001*
Do not have hepatitis B	1049	82,0	231	18,0	

* significant factors

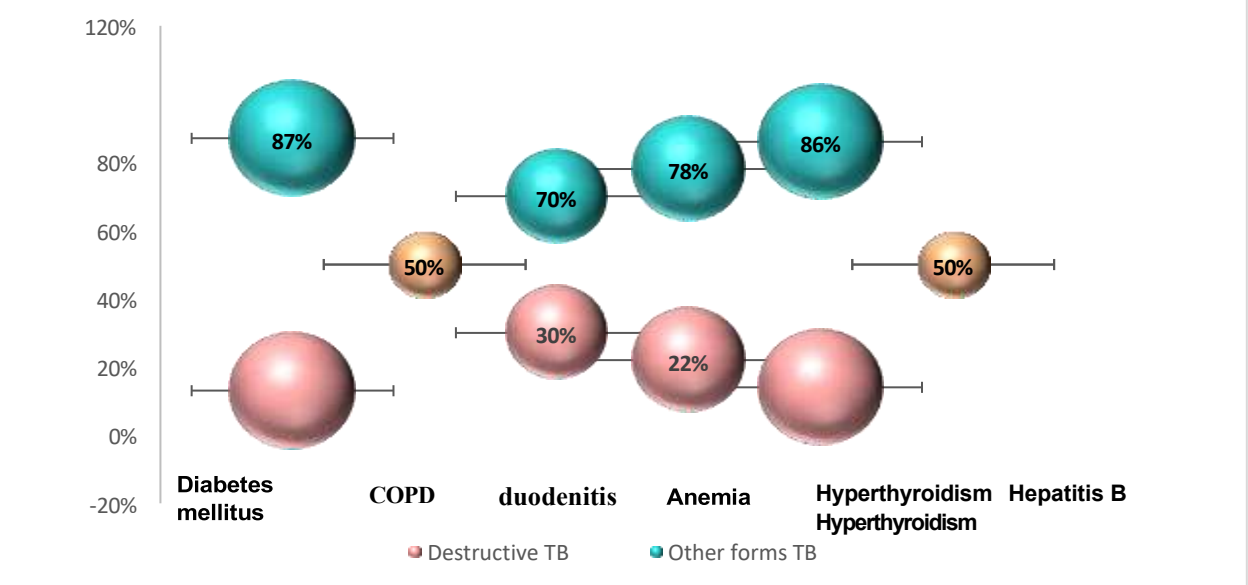

Fig. 4.9. Clinical and epidemiological characteristics of comorbid lesions in COVID-19 associated recurrent and newly diagnosed forms of TB.

The incidence of comorbidities, which are "constructed" mainly by 6 chronic non-specific diseases, in recurrent and newly diagnosed forms of pulmonary tuberculosis are confirmed with the following prevalence levels, respectively (Table 3 and Fig. 3): type 2 diabetes mellitus - 78.0% and 22.0% (P <0.001), COPD - 92.0% and 80.0% (P <0.001), gastroduodenitis - 68.0% and 32.0%

(P<0.001), anemia – 79.0% and 21.0% (P<0.001), hypertension – 75.0% and 25.0% (P<0.001) and chronic hepatitis B – 82.0% and 18.0% (P<0.001).

When TBL is first identified, gastroduodenitis, type 2 diabetes mellitus, arterial hypertension and anemia are stated to be a relatively high frequency comorbid background.

All these diseases are highly frequent (type SDE, COPD, anemia), hypertension, chronic hepatitis B) are observed in recurrent forms of pulmonary tuberculosis, except for gastroduodenitis.

The obtained data can be used in the development of algorithms and a risk scale for TBL against the background of colmorbidity taking into account COVID-19 infection.

CONCLUSION

In the clinical manifestation of COVID-associated tuberculosis of the lungs with a relatively high prevalence rate, frequent acute respiratory viral infections, cough during work, cough in winter, sputum production in winter, close contact (family outbreak) route of infection and the route of tuberculosis infection in the workplace and drug resistance (monoresistance, multiresistance, polyresistance, complete resistance) are observed. The most frequently noted diseases in the population with TB are type 2 diabetes mellitus, COPD, gastroduodenitis, anemia, arterial hypertension, chronic hepatitis B. In 73.0% (in the population of health workers) and 21.0% (in the PDP group) of cases, COVID - 19 is combined with a mild degree of TB.

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