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FEATURES OF CLINICAL MANIFESTATIONS OF VARIOUS FORMS OF TUBERCULOSIS LUNG LESIONS IN COVID-19 INFECTION

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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 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.

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. In the population of KovATPL of the Fergana Valley region, the features of clinical manifestations of various forms of tuberculous lung lesions in COVID-19 infection were studied and assessed. Table 1 and Fig. 1. show the characteristics of clinical manifestations of destructive and other forms of TB in COVID-19 infection, i.e. in the population of KovATPL.

From the presented analysis of the data in Table 1 and Fig. 1 it follows that in case of DLB and COVID-19 and other forms of TB (DrTB), the incidence of the main clinical manifestations was characterized by the following prevalence levels, respectively: 1) symptoms of acute respiratory viral infections (ARVI) - 3-4 times a year - 53.0% and 47.0%, 1 time per year - 18.0% and

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82.0% and the absence of ARVI during the year - 43.0% and 57.0% (P <0.001); 2) cough during work - 24.0% and 76.0% (P <0.001); 3) cough in winter - 26.0% and 74.0% (no cough in winter - 19.0% and 81.0%), respectively (P <0.001); 4) sputum production in winter – 58.0% and 42.0% (no sputum production in winter – 16.0% and 84.0), respectively (P <0.001);

The clinical symptoms of DLB and COVID-19 and DrTB are that every second patient experiences acute respiratory viral infection up to 4 times a year, cough with sputum production increases in winter (8 in 58.0% of cases); every fourth patient (with DLB and COVID-19) and in 70.0% of cases in patients with DrTB experience cough during work (Fig. 1).

Table 1.
Characteristics of clinical manifestations of destructive and other forms of TBL in COVID-19 infection in the Fergana region

Characteristics of clinical manifestations	**Destructive TBL in COVID-19 infection**		**Other forms of TBL in COVID-19 infection**		**P**
ARI	n	%	n	%	
3-4 times a year	45	53,0	40	47,0	<0,001*
I don't get sick	40	43,0	52	57,0	
1 time a year	122	18,0	555	82,0	
Cough during work	182	24,0	589	76,0	<0,001*
No cough during work	25	30,0	58	70,0	
Cough in winter	175	26,0	510	74,0	
No cough in winter	32	19,0	137	81,0	<0,001*
Sputum production in winter	99	58,0	73	42,0	
No sputum production in winter	108	16,0	574	84,0	<0,001*

SIGNIFICANT CHARACTERISTICS BY P-VALUE: acute respiratory viral infection, cough during work, cough in winter, sputum production.

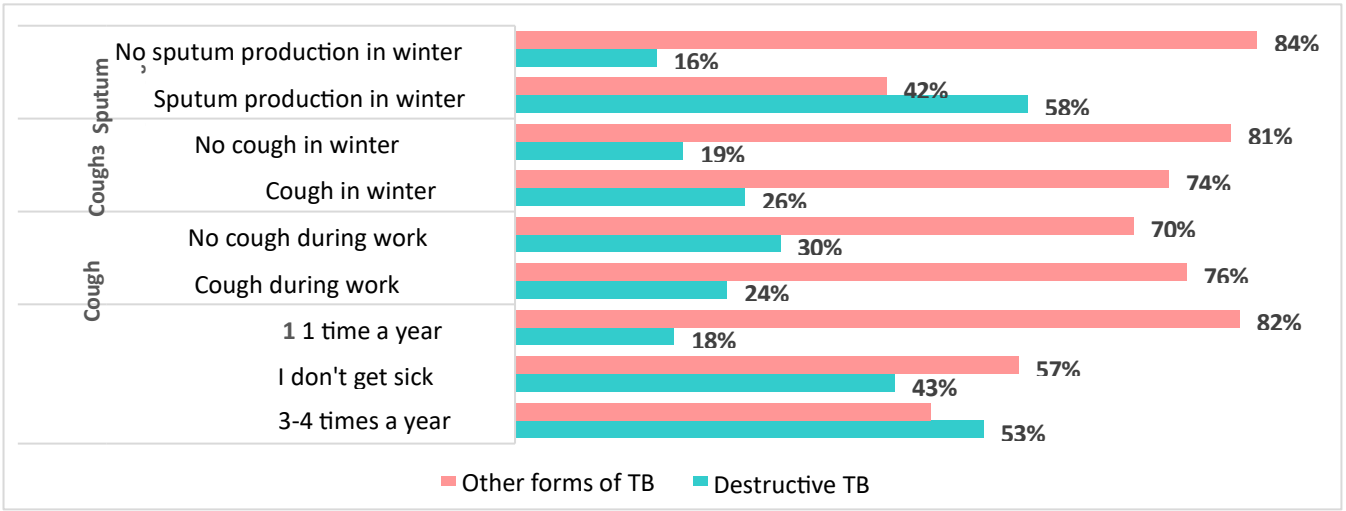

Fig.4.1. Clinical manifestations of DLB and COVID-19 in the Fergana region

The following Table 2 and Fig. 2 provide a clinical comparative characteristic of infiltrative forms (DfTBL) and other forms of TBL (DrTBL) in the population of KovATPL in the Fergana region.
Various clinical symptoms of DfTBL and DrTBL are characterized by the following levels - 3-4 times a year - 47.0% and 53.0%, once a year - 82.0% and 18.0% (P < 0.001); cough in winter - 74.0% and 26.% (P < 0.001); and sputum production in winter - 42.0% and 58.0% (P < 0.001).

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As can be seen from these data, with DftBL and DrTBL, symptoms of ARI are reliably frequent throughout the year: coughing during work and sputum production in winter.

When analyzing the clinical features of recurrent and newly diagnosed forms of pulmonary tuberculosis in COVID-19 infection (Table 3 and Fig.3), it was revealed that ARI is observed 3-4 times per year with a frequency of 78.0% and 22.0% (P <0.001), 1 time per year - 76.0% and 24.0% (P <0.001).

Cough during work is observed with a frequency of occurrence of 85.0% and 15.0%, respectively (P<0.001); cough in winter is characterized with a frequency of prevalence of 87.0% and 13.0% (P<0.001) and secreted sputum in winter is confirmed with a frequency of detection of 83.0% and 17.0%, respectively (P<0.001).

In both patients with recurrent TB and patients with newly diagnosed TB, all the above-mentioned and predictable clinical symptoms of pulmonary tuberculosis are observed with a significantly high frequency against the background of COVID-19.

It is noted that such clinical manifestations, in a more pronounced form, predominate in patients with TPL; VVTBL - the indicated main symptoms, firstly, are recorded with a low frequency and with a retail in the frequency of prevalence from 27.0% to 17.0%, i.e. by 7.0% (P<0.005).

Table 2.
Clinical characteristics of inflammatory clinical TBL in COVID-19 infection in the Fergana region

Characteristics of the clinical course?	**Infiltrative forms of TB in COVID-19 infection**		**Other forms of TBL in COVID-19 infection**		**P**
ARI	n	%	n	%	
3-4 times a year	40	47,0	45	53,0	<0,001*
I don't get sick	52	57,0	40	43,0	
1 time a year	555	82,0	122	18,0	
Cough during	589	76,0	182	24,0	<0,001*
work	58	70,0	25	30,0	
don't have a cough during	510	74,0	175	26,0	<0,001*
work	137	81,0	32	19,0	
Cough in winter	73	42,0	99	58,0	<0,001*
don't have a cough	574	84,0	108	16,0	

Significant characteristics by p-value: acute respiratory viral infection, cough during work, cough in winter, sputum production.

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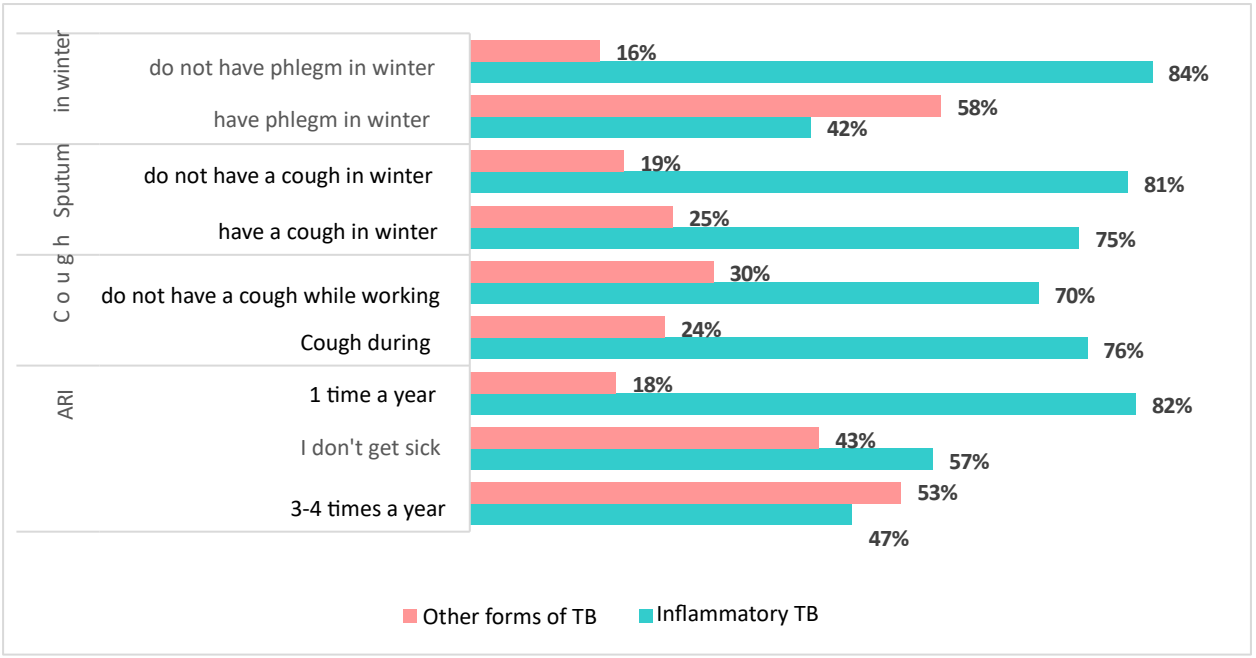

Fig. 2. Clinical manifestations of inflammatory TB in the Fergana region

Table 3.
Characteristics of clinical features of recurrent and first identified forms of TB in COVID-19 infection in the Fergana region

Characteristics of clinical manifestations	Relapse-TB in COVID-19 infection		First time TBL detected in COVID-19 infection		P
ARI	n	%	n	%	
3-4 times a year	134	78,0	39	22,0	<0,001*
I do not get sick	142	79,0	38	21,0	
1 time a year	876	76,0	270	24,0	
Cough during work	1048	85,0	187	15,0	<0,001*
do not have a cough during work	104	39,0	160	61,0	
Cough in winter	949	87,0	148	13,0	<0,001*
do not have a cough in winter	203	51,0	199	49,0	
Sputum secretion in winter	265	83,0	55	17,0	<0,001*
do not have sputum in winter	887	75,0	292	25,0	

Significant characteristics according to P-value: acute respiratory viral infection, cough during work, cough in winter, sputum production.

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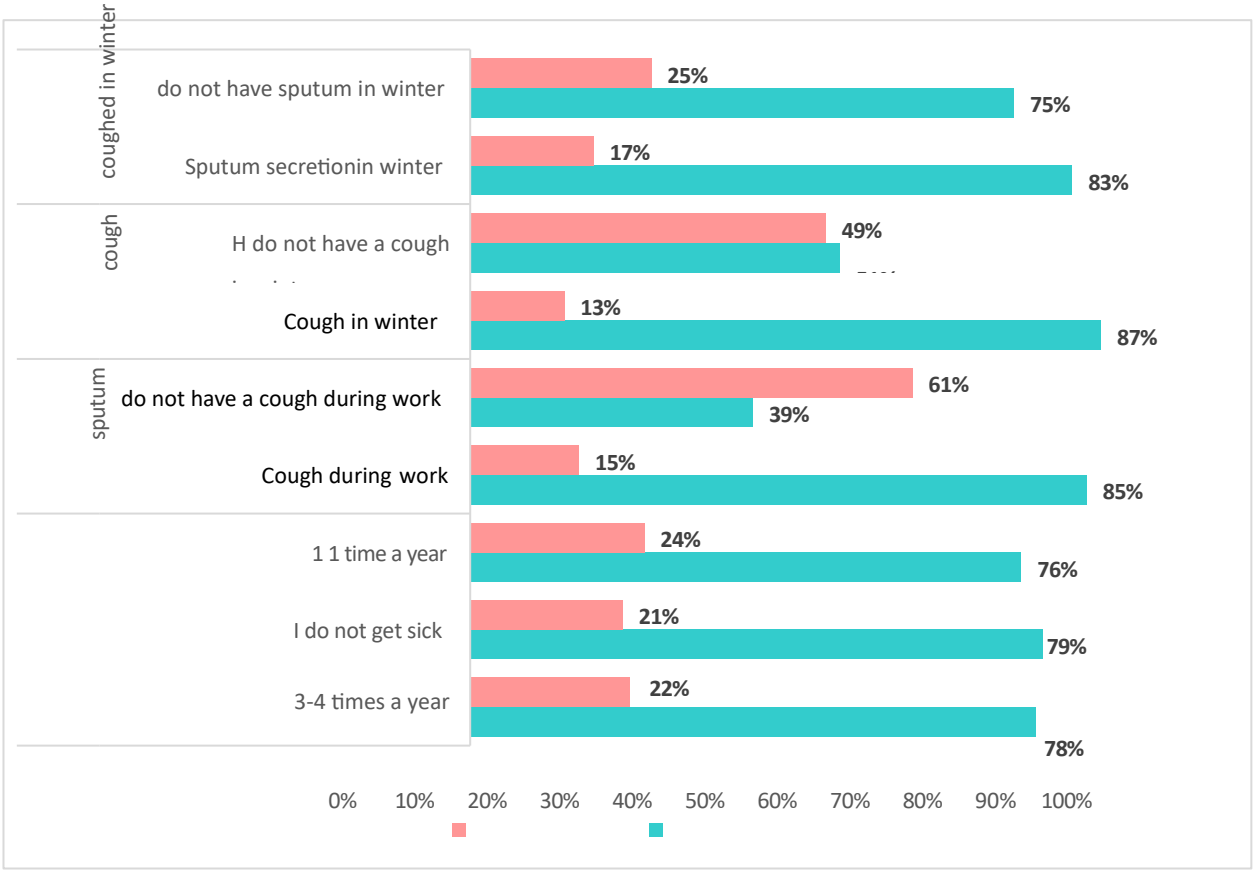

Fig. 3. Clinical manifestations of recurrent and newly diagnosed TB in the Fergana region

A similar analysis was conducted among the population of the Fergana region with destructive and other forms of pulmonary tuberculosis in COVID-19 infection.

The data in this regard are summarized and presented in Table 4. and Fig. 4.

As follows from the presented analyses of the materials, the leading clinical features in DTBn COVID-19 and other forms of TB are noted with a detection rate at the following levels, respectively: 1) the route of tuberculosis infection - at the workplace - 14.0% and 86.0% (P <0.001), unknown - 27.0% and 74.0% (P <0.001), and there is a family focus - 24.0% and 76.0% (P <0.001); 2) the presence of drug resistance - "not determined" - 43.0% and 57.0 (P < 0.005), "sensitivity to drugs" - 9.0% and 91.0% (P < 0.001),

"monoresistance" - 13.0% and 87.0% (P < 0.001), "multiresistance" - 21.0% and 79.0% (P < 0.001), "polyresistance" - 56.0% and 44.0% (P < 0.005) and"complete drug resistance" - 66.0 and 34.0% (P < 0.005).

In general, from the data presented, it can be noted that in destructive forms of TB, the idiopathic (unknown) form of the disease is observed with a relatively high frequency. A family focus of infection with DTBn COVID-19 occurs in almost every fourth patient with the lowest frequency of detection, as a route of infection of tuberculosis, "contact with patients at the workplace" is claimed.

In destructive forms of TB, according to our results, another significant problem is the problem of resistance: drug resistance is not determined in only 43.0% of cases.

But in the group of the population with "Other forms of TB", "Route of infection of tuberculosis in the workplace", "Sensitivity to drugs" and "mono resistance" prevail; "Unknown" routes of infection of tuberculosis are also claimed to be relatively high frequency of occurrence, "Polyresistance" and "complete drug resistance" in other

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Table 4
Characteristics of clinical features of destructive TBL in COVID-19 in the Fergana region

Characteristics of clinical manifestations	Destructive TBL in COVID-19 infection		Other forms of TBL in COVID-19 infection		P
The route of infection of tuberculosis	n	%	n	%	
at the workplace	17	14,09	103	86,0	
Unknown	150	27,0	416	74,0	<0,001*
Close contact (family hearth)	40	24,0	128	76,0	
Drug resistance	n	%	n	%	
not defined	19	43,0	25	57,0	
sensitivity	51	9,0	521	91,0	
monoresistance	3	13,0	21	87,0	<0,001*
multi-resistance	3	21,0	11	79,0	
polyresistance	5	56,0	4	44,0	
full	126	66,0	65	34,0	

Significant characteristics by P-value: Route of tuberculosis infection, Drug resistance

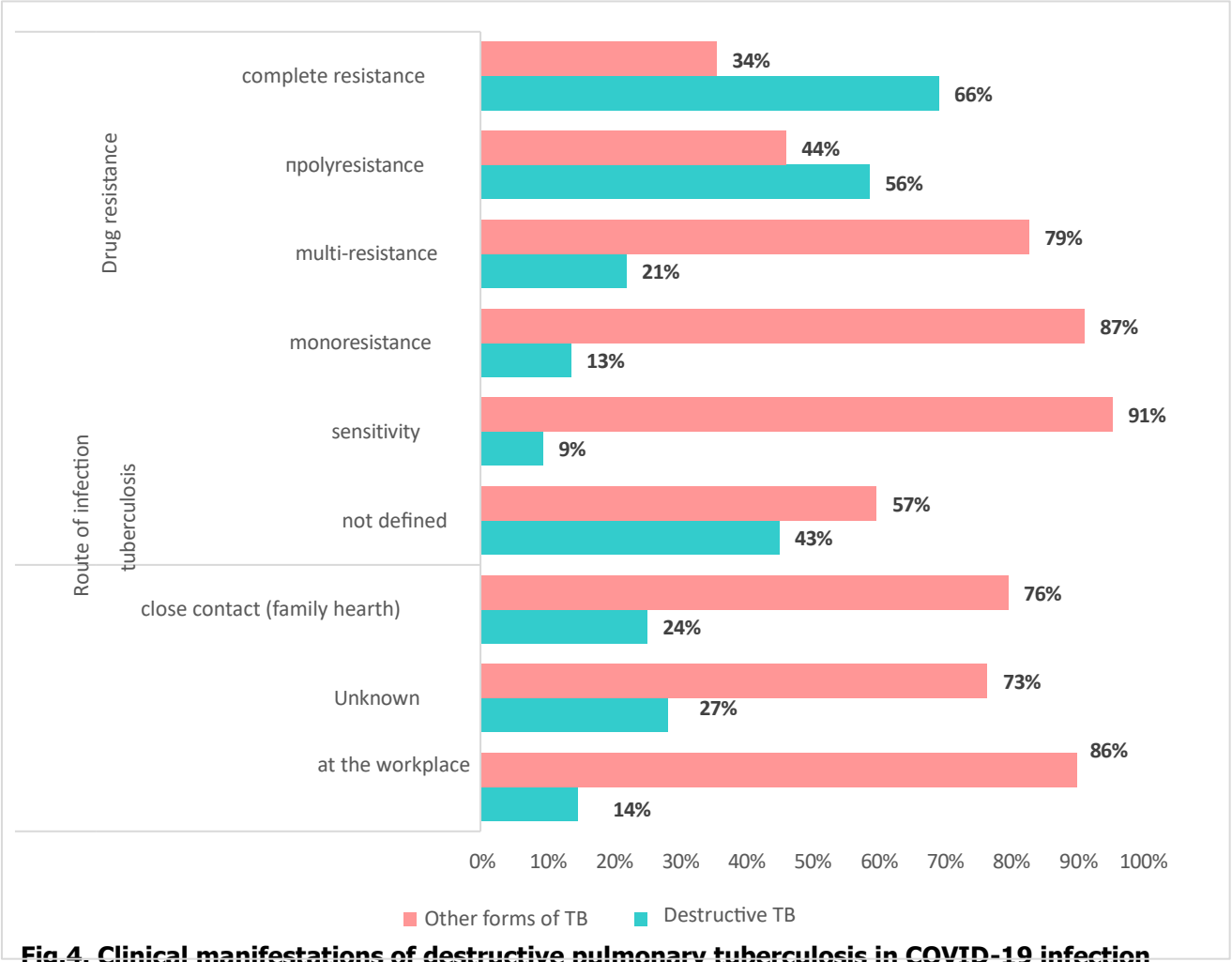

Fig.4. Clinical manifestations of destructive pulmonary tuberculosis in COVID-19 infection

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forms of TB are observed with the lowest prevalence rate.
Table 5 and Fig. 5 show the characteristics of the clinical features of inflammatory tuberculosis and other forms of TB among the population, with COVID-19 infection, in the Fergana region.

Table 5.
Characteristics of the features of inflammatory TBL in the Fergana region

Characteristics of clinical manifestations	**Infiltrative forms of TB in COVID-19 infection**		**Other forms of TBL in COVID-19 infection**		**P**
Route of tuberculosis infection	N	%	N	%	<0,001*
at the workplace	103	86,0	17	14,0	
Unknown	416	74,0	150	27,0	
Close contact (family outbreak)	128	76,0	40	24,0	
Resistance to drugs	N	%	N	%	
not determined	25	57,0	19	43,0	<0,001*
sensitivity	521	91,0	51	9,0	
monoresistance	21	87,0	3	13,0	
multiresistance	11	79,0	3	21,0	
polyresistance	4	44,0	5	56,0	
Complete	65	34,0	126	66,0	

Significant characteristics by P-value: Route of tuberculosis infection, Drug resistance

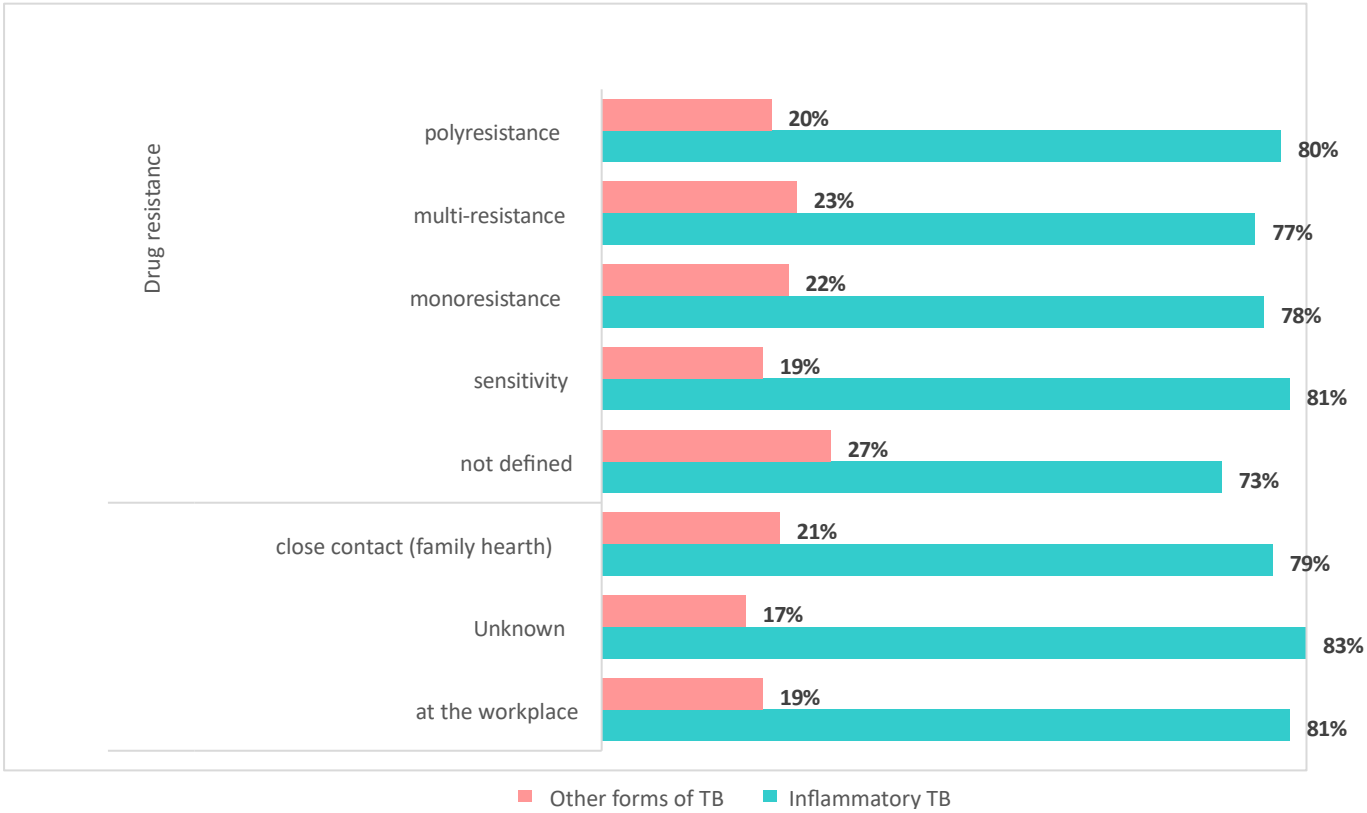

Fig.5. Clinical manifestations of inflammatory pulmonary tuberculosis in COVID-19 infection

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Table 6.
Characteristics of the features of inflammatory and newly diagnosed TB in the Fergana region

Characteristics of clinical manifestations	Infiltrative forms of TB in COVID-19 infection		Other forms of TBL in COVID-19 infection		P
	n	%	n	%	
The route of infection of tuberculosis at the workplace	128	81,0	31	19,0	<0,001*
Unknown	738	83,0	152	17,0	
Close contact (family outbreak)	197	79,0	51	21,0	
Drug resistance					
not determined	76	73,0	28	27,0	<0,001*
sensitivity	628	81,0	161	19,0	
monoresistance	29	78,0	8	22,0	
multiresistance	41	77,0	12	23,0	
polyresistance	16	80,0	4	20,0	
Complete	219	91,0	21	9,0	

Significant characteristics by P-value: Route of tuberculosis infection, Drug resistance

It is noted that the main characteristics of the clinical manifestations of VTBL and DfTBL are identified with the following prevalence rates, respectively: 1) "Route of tuberculosis infection" - in the workplace - 86.0% and 24.0% (P <0.001); route of infection unknown - 74.0% and 27.0% (P <0.001); family focus of infection - 76.0% and 243.0% (P <0.001); 2) "Drug resistance" - not determined – 57.0% and 43.0% (P<0.005), drug sensitivity – 91.0% and 9.0% (P<0.001), "monoresistance" - 87.0% and 13.0% (P<0.001), "polyresistance" - 44.0% and 56.0% (P<0.005) and "complete resistance" to drugs - 34.0% and 66.0%, respectively.

The factor of tuberculosis infection at the workplace (with TB) and resistance to drugs in various forms, as well as a family focus of infection, is confirmed to be of high frequency.

In other forms of TB, a relatively high frequency of detection occurs with the factors of "polyresistance" and "complete resistance" to drugs.

These data are of great importance in optimizing the prevention and pharmacotherapy of TB in the conditions of the studied region.

Next, we studied the characteristics of the clinical features of secondary and newly diagnosed TB in COVID-19 infection in the Fergana region (Table 6 and Fig. 6). It was found that the routes of tuberculosis infection in secondary and newly diagnosed forms are characterized by the following detection rates, respectively: 1) the frequency of infection in the workplace - 81.0% and 19.0% (P < 0.001); 2) the route of infection is unknown - 83.0% and 17.0% (P < 0.001); 3) the route of infection of tuberculosis is a family focus.

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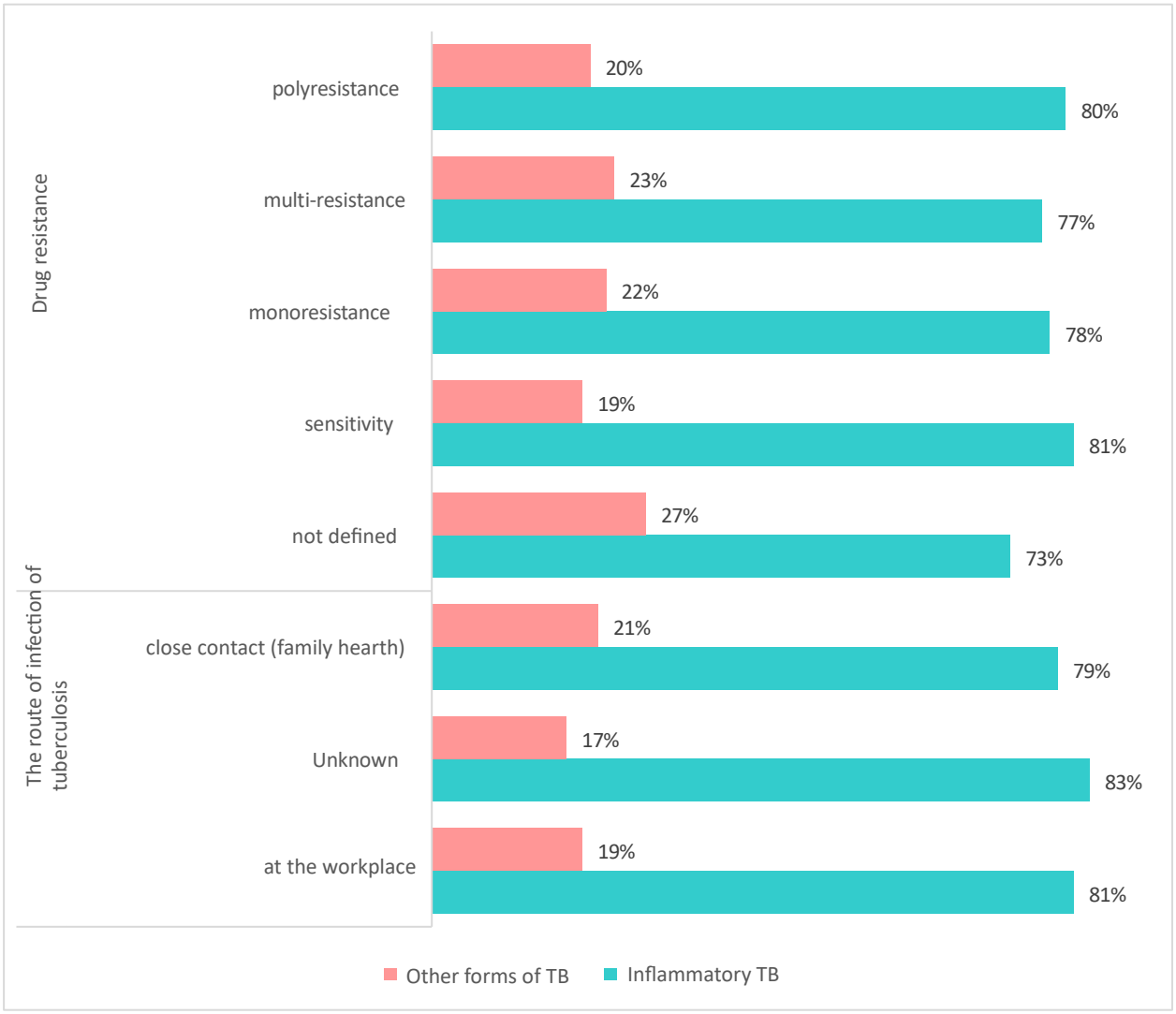

Fig.6. Clinical manifestations of secondary and primarily diagnosed pulmonary tuberculosis in COVID-19 infection.

79.0% and 21.0% (<P0.001). The frequency of occurrence of "Drug resistance" in secondary and newly diagnosed forms of TB is, respectively: 1) resistance is not determined – 73.0% and 27.0% (P<0.001); 2) drug sensitivity – 81.0% and 19.0% (P<0.001); 3) drug monoresistance – 78.0% and 22.0% (P<0.001); 4) drug multiresistance – 77.0% and 23.0% (P<0.001); 5) polyresistance – 80.0% and 20.0% (P<0.001); 6) complete resistance to drugs – 91.0% and 9.0% (P<0.001).

Noteworthy in secondary tuberculosis is the high percentage of detection frequency - routes of infection in the workplace, the presence of a family focus of infection and unknown routes of tuberculosis infection. A high percentage of detection is also noted in relation to the development of complete resistance to drugs.

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

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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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