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CLINICAL AND RADIOLOGICAL FEATURES OF NEWLY DETECTED PULMONARY TUBERCULOSIS IN PATIENTS WITH CONCOMITANT DISEASES

Rustamova Saodat Abdullayevna
Bukhara State Medical Institute

Abstract

Our studies of the social portrait and clinical manifestations of newly diagnosed pulmonary tuberculosis in young people with DR MBT identified a number of features. It was found that in patients with DR MBT, there was statistically significantly more often no permanent job, there were bad habits, mainly in the form of a combination of alcohol abuse and smoking. In this group of patients, concomitant pathology of other organs and systems, complications of the underlying disease, and one or more extrapulmonary localizations of the tuberculous process were more often diagnosed. Thus, the identified features of the social portrait, clinical manifestations and course of newly diagnosed pulmonary tuberculosis in young people make it possible to suspect the presence of MBT drug resistance even before obtaining the results of sputum culture and determining drug sensitivity.

Keywords: tuberculosis, drug resistance, concomitant pathology, newly detected

The purpose of the study:

To study the social portrait, clinical and laboratory manifestations, the prevalence of the tuberculous process and the severity of destruction in the lungs in patients with newly diagnosed pulmonary tuberculosis with concomitant diseases.

Material and Methods:

290 newly diagnosed patients with pulmonary tuberculosis aged 18-74 years were examined. Group 1 - 95 patients without concomitant diseases, Group 2 - 65 patients with concomitant diseases.

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Results and Discussion:

In the 1st group, disseminated tuberculosis, caseous pneumonia and fibrous-cavernous pulmonary tuberculosis prevailed among the clinical forms. Clinically, a more severe course of the disease was observed. The process in the lungs extended to 3 or more lobes, accompanied by the formation of medium cavities - from 2 to 4 cm, often multiple. Bacterial excretion was more often massive and was already determined by microscopy. In young patients with DR MBT, there was more often no permanent job, bad habits, comorbidities, and complications of tuberculosis. Thus, in young patients, newly diagnosed pulmonary tuberculosis with MBT drug resistance was associated with the peculiarities of social status and differed in severity and forms of clinical and radiological manifestations, which must be taken into account in the treatment and further rehabilitation. A retrospective analysis of 290 case histories of patients with newly diagnosed pulmonary tuberculosis aged 18-34 years who were treated at the Bukhara Regional TB Clinical Dispensary from 2017 to 2021 was carried out. The criteria for inclusion in the study were age, the presence of newly diagnosed pulmonary tuberculosis with bacterioexcretion. The patients were divided into two groups. The 1st group included 147 patients with established primary drug resistance (DR) of Mycobacterium tuberculosis (MBT). The 2nd group included 143 patients with preserved drug sensitivity (DS) of MBT to anti-tuberculosis drugs. All patients underwent a general clinical examination, including radiography with linear tomography, and, if necessary, with computed tomography of the chest organs, as well as bacterioscopic examination of sputum for MBT with fluorescent microscopy and culture to determine drug sensitivity. In the 1st group, which included 147 patients with pulmonary tuberculosis with DR MBT, there were 95 men (65.0%), women - 52 (35.0%), respectively. In the 2nd group, which consisted of 143 people with LS MBT, the proportion of men was 64.7% (92), the proportion of women was 35.3% (51 people), $p > 0.05$. When analyzing the epidemiological situation, all patients were divided into age categories - 18-24 years and 25-34 years. Patients aged 18-24 years in the 1st group accounted for 25% (37 people), in the 2nd group. - 34.3% (49 people); at the age of 25-34 years in the 1st group there were 110 people (75.2%), and in the 2nd - 94 patients (64.7%). Thus, both groups were dominated by men and patients of an older age group - 25-34 years. At the same time, there

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were no statistically significant differences in gender and age between the groups.

When analyzing the social status of patients with newly diagnosed pulmonary tuberculosis with DR and DS MBT, it was found that non-working persons predominated in both groups. It was noted that in the 1st group there were statistically significantly more such persons - 113 (77.4%) versus 89 (62.4%) in the 2nd ($p < 0.05$). Accordingly, the number of employed persons in the 1st group was 25 (16.8%), in the 2nd - 37 (25.8%). There were 9 students (6.1%) in the 1st group, and 17 students (12%) in the 2nd group, $p > 0.05$.

Among the patients of the 1st group, no patients with focal tuberculosis were registered. At the same time, the largest number of patients had an infiltrative form of tuberculosis - 44.5%. The remaining clinical forms were distributed as follows: disseminated - 30.7%, caseous pneumonia - 19.0%, fibrous-cavernous - 3.6% and tuberculoma - 2.2%. In the 2nd group, patients with an infiltrative form of pulmonary tuberculosis also predominated - 63.2% of cases. This turned out to be statistically significantly more common than in the 1st group ($p < 0.005$). This was followed by disseminated tuberculosis - 24.8% and caseous pneumonia - 5.3%, although less frequently than in patients with drug-resistant tuberculosis ($p < 0.001$). Other clinical forms were found in a small percentage of cases: focal form was diagnosed in 3.0% of patients, fibrous-cavernous - in 2.3% and tuberculoma - in 1.5% of cases. Consequently, in patients of the 1st group, with drug- resistant MBT, the most severe clinical form of the disease, caseous pneumonia, was more often observed, while in patients with drug-sensitive MBT, infiltrative tuberculosis was observed.

The general condition of patients in the 1st group was significantly more often regarded as moderate (50.4%) and severe (16%), $p < 0.05$ and $p < 0.001$, while in the 2nd group, 61.7% of patients were dominated by satisfactory condition. Symptoms of intoxication (sweating, weakness, fever, weight loss) were present in all patients of both groups. However, severe intoxication was observed in a larger number of patients of the 1st group (28.5% versus 9.0%, $p < 0.001$), while slightly pronounced intoxication was more often present in patients of the 2nd group (42.9% versus 24.8%, $p < 0.005$). Moderately pronounced signs of intoxication in both groups occurred with the same frequency. The temperature reaction with a rise to

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febrile numbers also turned out to be a more frequent occurrence among patients of the 1st group (51.9% vs. 32.3%, p <0.005). On the contrary, in the 2nd group, normal temperature was more often recorded (30.8 vs. 18.2%, p <0.05). Subfebrile temperature occurred with approximately the same frequency in patients of both groups. In the 1st group, the toxic effect of MBT on the cardiovascular system in the form of tachycardia and a decrease in blood pressure was diagnosed in 53.3 and 56.9% of patients versus 21.8% and 36.1%, respectively, in the 2nd group (p < 0.001).

Complaints of shortness of breath, cough, chest pain were present in patients of both groups (Table 2). At the same time, shortness of breath was significantly more common in patients of the 1st group (61.3 vs. 40.6%, p <0.001), including at rest - 21.2% vs. 6.8% (p<0.001). But there were no significant differences in the incidence of cough and its nature between the groups, as well as differences in the frequency of complaints of chest pain associated with breathing and coughing. The latter occurred in 29.2% of patients in group 1 and in 25.6% in group 2 (p <0.05).

Manifestations of chest symptoms during physical examination (changes in percussion sound and breathing, wheezing) were registered in 131 patients (95.6%) of the 1st group and in 119 (83.5%) patients of the 2nd group (p<0.005) . In the majority of patients in both groups, pulmonary sound and vesicular breathing were noted during percussion. However, in patients with LU MBT, there was a shortening of percussion sound 2 times more often (15.4 vs. 7.5%, p <0.05), bronchial breathing was heard almost 3 times more often (10.2 vs. 3.0%, p<0.05), wheezing in the lungs during auscultation - more than 2 times (35.7 vs. 15.8%, p<0.001), including a combination of dry and wet - almost 5 times (11.7 vs. 2.2%, p <0.005) than in group 2 (Table 1).

Concomitant pathology was more often present in patients of the 1st group - 89.1% (131 people) versus 72.2% (103 people) - in the 2nd group (p <0.001). In the structure of diseases in both groups, diseases of the gastrointestinal tract (52.5 and 46.9%), the respiratory system (22.9 and 29.9%), the eyes (15.6 and 27.1%) and the genitourinary system prevailed. (15.6 and 25.0% respectively). Less common were lesions of the central nervous (13.9 and 11.5%) and cardiovascular systems (9.8 and 15.6%), ENT organs (11.5 and 10.4%), peripheral nervous system (10 .7 and 7.3%) and skin (4.1 and 5.2%), alcoholism and drug addiction (4.1 and 3.1%),

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respectively. Sexually transmitted diseases (0.8 and 3.1%), diseases of the skeletal system (2.5 and 2.1%), HIV infection (1.6 and 1.0%), pathology of the endocrine system (0.8 and 2.1%), blood diseases were registered only in 1 patient of the 2nd group.

It should be noted that in 30.7% of patients of the 1st and 23.3% of the 2nd group, in addition to the main process, extrapulmonary localization of tuberculosis was diagnosed. In the 1st group of patients, most often - in 50.0% - pleurisy of tuberculous etiology was detected; tuberculosis of the larynx, trachea and bronchi was found in 42.9% of those observed. Damage to the ear, intestines and kidneys were diagnosed with the same frequency - 4.8% each. The most rare localizations of tuberculosis were lesions of bones, joints and intrathoracic lymph nodes - 2.4% each. In the 2nd group, lesions of the larynx, trachea and bronchi were most often recorded - in 61.3% of patients; less often - pleurisy of tuberculous etiology - in 32.3% of patients; The rarest were tuberculous bronchoadenitis and meningoencephalitis - 3.2% each. In the 1st group of patients in most cases - 90.5% - pulmonary tuberculosis was accompanied by one extrapulmonary localization of the process, in 7.1% - two and in 2.4% of cases - three. At the same time, in the 2nd group, in 100% of cases, only one extrapulmonary localization of the process was established.

In 86.9% of patients of the 1st group and in 66.2% of the 2nd group, the main disease proceeded with various complications, which occurred significantly more often with DR MBT ($p < 0.001$). Complications were represented by respiratory failure of varying severity (87.4 and 88.6%), anemia (47.1 and 39.8%), cachexia (33.6 and 21.6%), hemoptysis (15.9 and 10 .2%), renal failure (4.2 and 4.5%), pulmonary heart failure (5.0 and 3.4%), pneumothorax (5.0 and 1.1%, respectively). Pleural empyema with lymphobronchial and bronchothoracic fistulas occurred only in patients with DR-TB in 6.7% of cases.

Damage to 1-2 lobes of the lung tissue in both groups occurred in approximately equal proportions - 32.8 and 36.8%, respectively. However, in most patients of the 1st group (44.5%), changes in the lung tissue involved 3 or more lobes of the lung 1.7 times more often than in the 2nd group (25.6%, $p<0.005$) . On the contrary, in patients of the 2nd group in 37.6% of cases, infiltration occupied only 1-2 segments against 22.6% of the 1st group ($p < 0.05$). That is, the forms of tuberculosis with resistant MBT were

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accompanied by a greater prevalence of the process in the lungs, and the lesion in drug-sensitive MBT, as a rule, did not exceed 1-2 segments.

Cavities in the lungs were diagnosed in 129 patients in group 1 and in 120 patients in group 2. Small cavities - up to 2 cm in diameter - were detected in 55.8% of patients of the 2nd group, while in patients of the 1st group - only in 36.4% of cases ($p < 0.005$). Medium cavities - 2 to 4 cm in diameter, on the contrary, were more typical for patients with drug-resistant MBT (41.9 vs. 28.3%, $p<0.05$). Large and giant caverns - more than 4 cm in diameter - were more often found in patients of the 1st group (21.7%), less often - 15.8% - in the 2nd group, but no statistically significant differences were found. In the 1st group, multiple cavities were detected in 41.9% of the examined versus 25.8% in the 2nd group ($p < 0.05$) and were most typical for patients with caseous pneumonia. Single cavities, on the contrary, were diagnosed in 105 patients (74.2%) of the 2nd group, while in LU MBT the proportion of such patients was 58.1% ($p < 0.05$).

When comparing the results of microbiological examination of sputum in patients with newly diagnosed pulmonary tuberculosis of the 1st and 2nd groups, certain patterns were established associated with the massiveness of bacterial excretion during sputum smear microscopy and inoculation on nutrient media. Thus, among patients with drug-resistant MBT, bacterial excretion in 62.0% was already detected by bacterioscopy, while the seeding method established bacterial excretion only in 38.0% of patients. In the 2nd group, these figures, on the contrary, amounted to 48.1 and 51.9%, respectively, and this was statistically significantly different from those in the 1st group. According to the bacteriological method, poor bacterial excretion prevailed in the 2nd group (39.9 vs. 27.0%, $p < 0.05$), moderate was observed in approximately equal proportions in both groups (11.0 and 10.5%, respectively), and massive was registered only in the 2nd group and only in 1.5% of cases, i.e. for patients with pulmonary tuberculosis with MBT drug resistance, a more massive bacterial excretion, determined by bacterioscopy, is characteristic.

The nature of the primary drug resistance of MBT in patients of the 1st group was studied in detail. The results showed that polyresistance prevailed in 66 (44.9%) patients, monoresistance was less common - in 58 patients (39%). Monoresistance was established to such first-line drugs as streptomycin - 21 (36.2%), ethambutol - 8 (13.7%), rifampicin - 8 (13.7%), isoniazid - 6

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(10.8%). Among second-line drugs, 8 patients (13.7%) were monoresistant to protionamide and 1 (1.6%) to kanamycin . The most unfavorable resistance variant (multiple resistance, i.e. resistance to at least isoniazid and rifampicin at the same time) was established only in 19 (12.9%) patients.

Conclusion

Our studies of the social portrait and clinical manifestations of newly diagnosed pulmonary tuberculosis in young people with DR MBT identified a number of features. It was found that in patients with DR MBT, there was statistically significantly more often no permanent job, there were bad habits, mainly in the form of a combination of alcohol abuse and smoking. In this group of patients, concomitant pathology of other organs and systems, complications of the underlying disease, and one or more extrapulmonary localizations of the tuberculous process were more often diagnosed. Analysis of clinical manifestations in patients with DR MBT indicated a more severe course of the disease - with severe intoxication, febrile fever, and shortness of breath at rest. Physical examination often revealed a shortening of percussion sound, bronchial breathing, a combination of dry and wet rales. Radiographically, disseminated tuberculosis, caseous pneumonia and fibrous-cavernous pulmonary tuberculosis predominated. The process in the lungs spread to 3 or more lobes, accompanied by the formation of cavities from 2 to 4 cm, often multiple. Bacterial excretion was more often massive and was already determined by microscopy. In the structure of DR MBT, almost 1/2 of patients had polyresistance. At the same time, monoresistance was 37.9 % and multidrug resistance was determined in 13.9% of the examined. Thus, the identified features of the social portrait, clinical manifestations and course of newly diagnosed pulmonary tuberculosis in young people make it possible to suspect the presence of MBT drug resistance even before obtaining the results of sputum culture and determining drug sensitivity.

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