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DESCRIPTIVE ANALYSIS OF THE CLINICAL COURSE OF RESISTANT TUBERCULOSIS DEPENDING ON THE PATIENTS' GENDER

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ABSTRACT

The relevance of studying the clinical course of tuberculosis depending on the sex of patients is due to the need to develop gender-specific approaches to diagnosis, treatment, and prevention of the disease, which can improve the effectiveness of medical care.

Materials and methods. This study is based on a detailed analysis of the medical records of 123 patients who underwent inpatient treatment in phthisiatric and pulmonological centers in the Bukhara and Navoiy regions of the Republic of Uzbekistan from 2019 to 2023. The prospective study included a main group of 31 patients (25.2%) treated in 2023, of which 15 patients were from the Bukhara region and 16 patients from the Navoiy region. The remaining 92 patients (74.8%) treated in the Bukhara region were included in the retrospective study and formed the comparison group.

Results. Among the initial patients, out of 80 men participating in the study, 43 (53.8%) are categorized as primary patients. Out of 43 women, 31 (72.1%) are classified as primary patients. In the total sample (123 people), 74 (60.2%) are primary patients. Among the secondary patients, 37 out of 80 men (46.3%) are secondary patients, while only 12 out of 43 women (27.9%) fall into the secondary patient category. Overall, 49 out of 123 (39.8%) in the sample are secondary patients.

Conclusion. Women are more likely than men to be primary patients, suggesting they seek medical help earlier or are more health-conscious, while men are more frequently secondary patients, possibly indicating higher relapse or disease progression rates in this group.

Key words: tuberculosis, multidrug-resistant tuberculosis.

INTRODUCTION

Tuberculosis (TB) remains a significant global health problem. According to data from 2022, approximately 1.3 million people died from this disease, including 167,000 individuals infected with HIV. It is noteworthy that more than 10 million people contract TB annually, showing a slight but steady increase compared to previous years. It is important to emphasize that multidrug-resistant TB (MDR-TB) poses a serious public health challenge and a threat to health security. Specifically, in 2022, only about 2 out of every 5 people with drug-resistant TB sought medical care [4].

These data underscore the urgent need to strengthen global efforts in the prevention, diagnosis, and treatment of TB. Only through such measures can we move closer to achieving the goal of ending the TB epidemic by 2030, as set by the World Health Organization and the United Nations.

Purpose of the study

Study of the clinical course of resistant tuberculosis in patients depending on their gender

Materials and methods

This study is based on a detailed analysis of the medical records of 123 patients who underwent inpatient treatment in phthisiatric and pulmonological centers in the Bukhara and Navoiy regions of the Republic of Uzbekistan from 2019 to 2023. The prospective study included a main group of 31 patients (25.2%) treated in 2023, of which 15 patients were from the Bukhara region and 16 patients from the Navoiy region. The remaining 92 patients (74.8%) treated in the Bukhara region were included in the retrospective study and formed the comparison group.

Within the framework of the conducted study, the gender composition of participants in both groups was analyzed. In the main group, which included 31 patients, there was a predominance of males — 18 participants (58.1%), while females were represented by 13 participants (41.9%). In the control group, consisting of 92 people, a similar trend was observed with 62 men (67.4%) compared to 30 women (32.6%).

During the statistical analysis of age data, it was found that the mean age of participants in the main study group was 54.63 years with a standard deviation of 11.42 years. The corresponding indicators for the control group were 54.14 years with a standard deviation of 9.82 years. The overall mean age for the entire cohort of 123 patients was 54.62 years with a standard deviation of 10.2 years.

Diagnostic methods

The diagnosis of tuberculosis requires a comprehensive approach that includes several laboratory methods, each with its specific purposes and

applications. These methods help not only to confirm the presence of Mycobacterium tuberculosis, the causative agent of tuberculosis, but also to assess its sensitivity to anti-tuberculosis drugs, which is critically important for prescribing adequate therapy.

Tactics for treating tuberculosis

The treatment of patients was carried out using anti-tuberculosis drugs in accordance with clinical protocols. Since all 123 patients were included in our clinical study during the period from 2019 to 2023, their therapy was based on two different clinical protocols corresponding to the time frames of this period. For many patients in the control group, the treatment strategy was based on the old clinical protocol "On Improving Tuberculosis Control Measures in the Republic of Uzbekistan," approved by Order No. 383 of the Ministry of Health of the Republic of Uzbekistan on October 24, 2014. The remaining patients received treatment according to the "National Clinical Protocol for the Management and Treatment of Respiratory Tuberculosis in Adults," approved by the Minister of Health of the Republic of Uzbekistan on February 14, 2020.

Discussion

The current global monitoring of tuberculosis incidence shows an increase in the average age of patients with active tuberculosis. This age effect is exacerbated by changes in the clinical manifestations of the disease, decreased accuracy of diagnostic tests, and an increase in the frequency of adverse reactions to antimicrobial treatment. In the future, epidemiological surveillance, the development of new diagnostic methods, and clinical trials aimed at reducing treatment duration should pay special attention to the elderly age group.

Moreover, considering the demographic shift towards an aging population, it is important to adapt existing prevention and treatment strategies to effectively address the changing needs and challenges associated with aging [1-10].

Research results

Patient Categories – Patients are classified as "Primary" and "Secondary." Primary patients are usually those who have sought medical help for a specific condition for the first time or have begun treatment with an initial diagnosis. Secondary patients are those who have already sought medical help or continue treatment due to relapses or ongoing disease.

Based on the data presented in the table below, a detailed descriptive analysis of the frequency of different patient categories divided by gender can be conducted (Table 1).

Table 1

Frequency of Patient Categories (by Gender)						
Patient Category	Men (n=80)		Women (n=43)		Total (n=123)	
	abs	M (%)	abs	M (%)	abs	M (%)
Primary	43	53,8	31	72,1	74	60,2
Secondary	37	46,3	12	27,9	49	39,8
χ^2 between genders	**P=0,048**				**P=0,024**	

Among the primary patients, out of 80 men participating in the study, 43 (53.8%) are categorized as primary patients. Out of 43 women, 31 (72.1%) are classified as primary patients. In the total sample (123 people), 74 (60.2%) are primary patients.

Among the 80 men, 37 (46.3%) are secondary patients, while among the 43 women, only 12 (27.9%) are secondary patients. In total, 49 out of 123 (39.8%) in the sample are secondary patients. The P-value between genders is 0.048, indicating statistically significant differences in the distribution of primary and secondary patients between men and women. The overall P-value for the entire sample is 0.024, confirming the significance of the observed differences across the whole sample.

This means that women are significantly more likely than men to be primary patients, which may indicate a higher likelihood of seeking help at the first symptoms or better health awareness. Men are more often secondary patients, which may indicate a higher level of relapses or disease progression in this group.

Table 2 presents an analysis of the distribution of comorbidities among men and women in the research sample. The data allow for an assessment of the prevalence of various diseases and medical conditions depending on gender. Now, let's consider each pathology separately (Table 2).

Table 2

Distribution by concomitant pathology (among genders)							
Concomitant pathologies	Genders				χ^2 between concomitant pathologies (P)	Total (n=123)	
	Men (n=80)		Women (n=43)				
	abs	M (%)	abs	M (%)		abs	M (%)
Anemia	52	65,0	36	83,7	**0,028**	88	71,5
Chronic kidney disease	37	46,3	27	62,8	>0,05	64	52,0
Cardio-vascular pathology	27	33,8	22	51,2	>0,05	49	39,8
Endocrine pathology	24	30,0	13	30,2	>0,05	37	30,1
Hepatitis	17	21,3	6	14,0	>0,05	23	18,7
Lack of body mass	10	12,5	9	20,9	>0,05	19	15,4

B-20 (HIV)	15	18,8	2	4,7	**0,031**	17	13,8
Obesity	9	11,3	5	11,6	>0,05	14	11,4
Pulmonary pathologies	6	7,5	5	11,6	>0,05	11	8,9
Gastrointestinal tract	7	8,8	1	2,3	>0,05	8	6,5
Neurological pathologies	4	5,0	1	2,3	>0,05	5	4,1
Allergy	0	0,0	2	4,7	>0,05	2	1,6
χ^2 between genders	P=0,317						
Sum and average number of diseases per patient	208	2,6	129	3,0		337	2,7

Anemia is observed in 65% of men and 83.7% of women, with a significant difference (p=0.028), highlighting its high prevalence among women. This may be due to gender-specific physiological characteristics, such as menstrual iron loss.

Chronic kidney disease is present in 46.3% of men and 62.8% of women, with no statistically significant differences (p>0.05). Cardiovascular pathologies are recorded in 33.8% of men and 51.2% of women, also with no significant differences (p>0.05). Although chronic kidney disease and cardiovascular pathologies are more common among women, they do not show statistically significant differences between genders. This indicates a possible similarity in the impact of common risk factors on the development of these diseases in men and women.

Endocrine diseases are equally distributed among men and women (30%), indicating their equal frequency (p>0.05). Endocrine diseases are observed equally often in both sexes, suggesting equal vulnerability of men and women to these disorders.

Hepatitis and underweight are found in 21.3% of men and 14% of women, and 12.5% of men and 20.9% of women, respectively. In both cases, there are no significant differences (p>0.05). Hepatitis and underweight also do not show significant gender differences, emphasizing that gender is not a dominant factor in the prevalence of these conditions.

B-20 is recorded in 18.8% of men and 4.7% of women. B-20 is significantly more common in men, which is statistically confirmed (p=0.031), indicating potential gender-specific risk factors or differences in diagnosis and reporting of the disease.

Obesity is prevalent among 11.3% of men and 11.6% of women. Pulmonary pathologies are observed in 7.5% of men and 11.6% of women. Gastrointestinal diseases are present in 8.8% of men and 2.3% of women. Neurological pathologies are found in 5% of men and 2.3% of women. Obesity, pulmonary pathologies, gastrointestinal diseases, and neurological pathologies are distributed across

genders without statistically significant differences, indicating common risk factors and mechanisms of their occurrence.

Allergies are not observed in men but are present in 4.7% of women, without significant differences ($p>0.05$). However, the lack of statistical significance may indicate a small sample size or data heterogeneity.

Pearson's chi-square test between genders showed a p-value of 0.317, indicating no significant statistical differences in the overall number of pathologies between genders. The average number of diseases per patient was 2.6 for men and 3.0 for women, highlighting a slightly higher overall disease burden among women.

The average number of diseases per patient is 2.6 for men and 3.0 for women, which may indicate a slightly higher disease burden among the female participants of the study.

Thus, the results emphasize the need to consider gender-specific characteristics when planning medical interventions and conducting clinical research and can serve as a basis for a deeper analysis of the causes of morbidity differences between men and women.

The table below illustrates the analysis of the distribution of clinical complaints among patients classified by gender. The table contains quantitative and percentage indicators of complaints presented by men and women and includes the results of the Pearson chi-square test applied to determine the statistical significance of the observed differences in the frequency of symptoms between the two groups (Table 3).

Table 3

Frequency of complaints (between genders)							
Complaints	Genders				χ^2 between complaints	Total (n=123)	
	Men (n=80)		Women (n=43)				
	abs	M (%)	abs	M (%)		abs	M (%)
Cough	78	97,5	43	100,0	>0,05	121	98,4
Weakness	77	96,3	43	100,0	>0,05	120	97,6
Sputum	71	88,8	42	97,7	>0,05	113	91,9
Loss of appetite	67	83,8	36	83,7	>0,05	103	83,7
Shortness of breath	57	71,3	32	74,4	>0,05	89	72,4
Sweating	49	61,3	36	83,7	**0,01**	85	69,1
Weight loss	52	65,0	27	62,8	>0,05	79	64,2
Chest pain	28	35,0	13	30,2	>0,05	41	33,3
Fever	15	18,8	8	18,6	>0,05	23	18,7
Headache	9	11,3	4	9,3	>0,05	13	10,6
Hemoptysis	6	7,5	1	2,3	>0,05	7	5,7

Pain in the lumbar region	2	2,5	0	0,0	>0,05	2	1,6
Pollakiuria	0	0,0	1	2,3	>0,05	1	0,8
χ^2 between genders	P=0,471						
Total and average ratio of complaints per patient	511	6,4	286	6,7		797	6,5

Descriptive analysis of complaints: Cough is the most frequently reported complaint, present in 97.5% of men and all women in the study. The overall frequency is 98.4%. Weakness is also a very common complaint, affecting 96.3% of men and 100% of women. In total, 97.6% of patients experience this symptom. Sputum is noted in 88.8% of men and 97.7% of women, with an overall frequency of 91.9%. Appetite loss is found in 83.8% of men and 83.7% of women, showing an even distribution among genders. Shortness of breath is present in 71.3% of men and 74.4% of women, with an overall frequency of 72.4%. Sweating is significantly more common in women (83.7% compared to 61.3% in men, p=0.01), which may indicate a gender-specific manifestation of this symptom. Weight loss is observed in 65.0% of men and 62.8% of women, with an overall rate of 64.2%. Chest pain and fever are complaints with relatively low frequency, occurring in less than a quarter of patients. Headache and hemoptysis are rare complaints, affecting less than 10% and 6% of patients, respectively. Lower back pain and pollakiuria are the least frequent complaints, affecting a small percentage of patients.

The study shows that cough and weakness are the most common complaints among patients, with their prevalence being almost identical in men and women, indicating their general occurrence in this population. The same trend is observed for complaints of sputum and appetite loss, where gender differences are also minimal.

Shortness of breath, while quite common among all patients, does not show significant gender differences, highlighting its role as a prevalent symptom in this group. However, sweating is noticeably more common in women, which may be related to gender-specific physiological characteristics or hormonal differences. This difference is statistically significant and requires further study to determine the causes of such a trend. Complaints such as weight loss, chest pain, fever, headache, and hemoptysis show similar frequencies between genders, indicating an even distribution of these complaints.

Lower back pain and pollakiuria are rare complaints and also do not show significant differences between genders.

Pearson's chi-square test between genders showed a p-value of 0.471, indicating no overall statistically significant differences in the prevalence of complaints between men and women.

The average number of complaints per patient is 6.4 for men and 6.7 for women, reflecting a similar clinical picture in patients of both genders.

The study emphasizes the need to consider gender-specific characteristics in clinical practice, especially in the context of managing symptoms such as sweating, which may manifest differently in men and women. These data can serve as a basis for further research on gender-specific approaches to patient treatment and care.

Conclusions

Women are significantly more likely than men to be primary patients, which may indicate a higher likelihood of seeking medical care at the first symptoms or better health awareness. Meanwhile, men are more often secondary patients, which may suggest a higher level of recurrence or progression of diseases in this group.

The analysis indicated no significant statistical differences in the overall number of pathologies between men and women. The average number of diseases per patient was 2.6 for men and 3.0 for women, indicating a slightly higher overall disease burden among women. These results emphasize the need to consider gender-specific characteristics when planning medical interventions and conducting clinical research, and can serve as a basis for a deeper analysis of the causes of morbidity differences between genders.

The latest analysis indicates no statistically significant differences in the prevalence of complaints between men and women. The average number of complaints per patient is 6.4 for men and 6.7 for women, reflecting a similar clinical picture in both genders. The study once again highlights the need to consider gender-specific characteristics in clinical practice, especially when managing symptoms such as sweating, which may manifest differently in men and women. These data can serve as a basis for further research on gender-specific approaches to patient treatment and care.

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