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ADVANCEMENTS IN DIAGNOSIS AND TREATMENT METHODS FOR POOR-QUALITY TUMORS AND PULMONARY TUBERCULOSIS IN CASES OF COMORBIDITY

Isomiddin H. Usmanov [1], Iroda M. Iskandarova [2]

1 DSc, Head of the Department of Phthisiatry,
Bukhara State Medical Institute, Bukhara, Uzbekistan

2 Assistant of the Department of Oncology,
Bukhara State Medical Institute, Bukhara, Uzbekistan

ABSTRACT

This study focuses on enhancing diagnostic and therapeutic approaches for individuals suffering from both poor-quality tumors and pulmonary tuberculosis concurrently, a challenging medical scenario. Key objectives include refining diagnostic accuracy, optimizing treatment efficacy, and improving patient outcomes. Through a comprehensive literature review and analysis, this research aims to address the complexities of comorbid conditions, offering insights into innovative methodologies and strategies. Material and methods involve a systematic review of relevant studies, clinical data analysis, and computational modeling. Results showcase promising advancements in imaging techniques, molecular diagnostics, targeted therapies, and multidrug regimens tailored for comorbid patients. Conclusion emphasizes the importance of interdisciplinary collaboration, personalized medicine approaches, and ongoing research efforts to effectively manage this intricate medical condition.

Key words: Comorbidity, Poor-Quality Tumors, Pulmonary Tuberculosis, Diagnosis, Treatment, Interdisciplinary Collaboration, Personalized Medicine.

INTRODUCTION

The co-occurrence of poor-quality tumors and pulmonary tuberculosis (TB) presents a significant challenge in clinical practice, demanding innovative approaches to diagnosis and treatment. This comorbid condition poses intricate diagnostic dilemmas and therapeutic complexities, thereby underscoring the pressing need for advancements in medical science.[2]

Firstly, the prevalence of comorbidities, including tumors and TB, has been rising globally. This trend is partly attributed to factors such as aging populations, increased exposure to carcinogens, lifestyle changes, and the persistence of TB in certain regions. As a result, healthcare systems are encountering a growing number of patients presenting with overlapping conditions, necessitating tailored diagnostic and therapeutic strategies. [7]

Secondly, the diagnosis of poor-quality tumors and pulmonary TB in the context of comorbidity is often challenging due to overlapping symptoms and radiological findings. Discriminating between tumor-related manifestations, TB-associated changes, and potential adverse effects of treatments requires sophisticated diagnostic tools and multidisciplinary expertise. Failure to accurately identify either condition can lead to delayed or inappropriate interventions, compromising patient outcomes. [5]

Furthermore, the management of comorbid poor-quality tumors and TB demands a delicate balance between oncological and anti-TB treatments. Conventional chemotherapy and radiation therapy regimens may exacerbate TB infection or compromise the immune system, thereby increasing the risk of TB reactivation or treatment failure. Conversely, standard anti-TB drugs may interact with anticancer agents, affecting their efficacy or causing adverse reactions. Thus, optimizing treatment protocols to achieve therapeutic efficacy while minimizing toxicity is paramount in comorbid patients. [8]

Moreover, the emergence of drug-resistant strains of TB and tumor cells poses additional challenges in managing comorbid conditions. Drug-resistant TB requires prolonged and often complex treatment regimens, which may further complicate the management of concurrent tumors. Similarly, the development of resistance to anticancer therapies necessitates innovative approaches, such as targeted therapies and immunotherapies, which must be carefully integrated into the treatment plan considering the patient's overall health status. [1]

Addressing the complexities of comorbid poor-quality tumors and pulmonary TB requires a multifaceted approach that encompasses advances in diagnostic modalities, therapeutic interventions, and supportive care. Novel imaging techniques, such as positron emission tomography-computed tomography (PET-CT) and magnetic resonance imaging (MRI), offer improved sensitivity and specificity in detecting both tumors and TB lesions. Molecular diagnostic assays enable the precise identification of tumor subtypes and TB strains, guiding personalized treatment decisions. [4]

Furthermore, the advent of immunotherapies and targeted therapies revolutionizes cancer treatment paradigms, offering tailored approaches with

enhanced efficacy and reduced toxicity. Similarly, the development of new anti-TB drugs and treatment regimens holds promise for improving outcomes in TB patients, including those with comorbidities. [2]

In conclusion, the growing prevalence of comorbid poor-quality tumors and pulmonary TB underscores the need for continuous innovation in diagnostic and treatment methodologies. By leveraging advancements in medical science, including imaging technologies, molecular diagnostics, targeted therapies, and antimicrobial agents, clinicians can enhance the management of this complex medical condition, ultimately improving patient outcomes and quality of life. Interdisciplinary collaboration among healthcare professionals, researchers, and policymakers is essential to address the multifaceted challenges posed by comorbidities and drive progress towards more effective interventions. [1]

The coexistence of poor-quality tumors and pulmonary tuberculosis (TB) presents a significant challenge in clinical practice, demanding innovative approaches to diagnosis and treatment. This study aims to investigate advancements in diagnostic and therapeutic methods for managing comorbid poor-quality tumors and pulmonary TB. The objectives include refining diagnostic accuracy, optimizing treatment efficacy, and improving patient outcomes. [6]

Purpose

The purpose of this study is to investigate the occupational distribution of patients diagnosed with ESR (extrapulmonary tuberculosis), pulmonary tuberculosis (TB), and those diagnosed with both ESR and pulmonary TB (ESR+Pulmonary TB).

Materials and Methods:

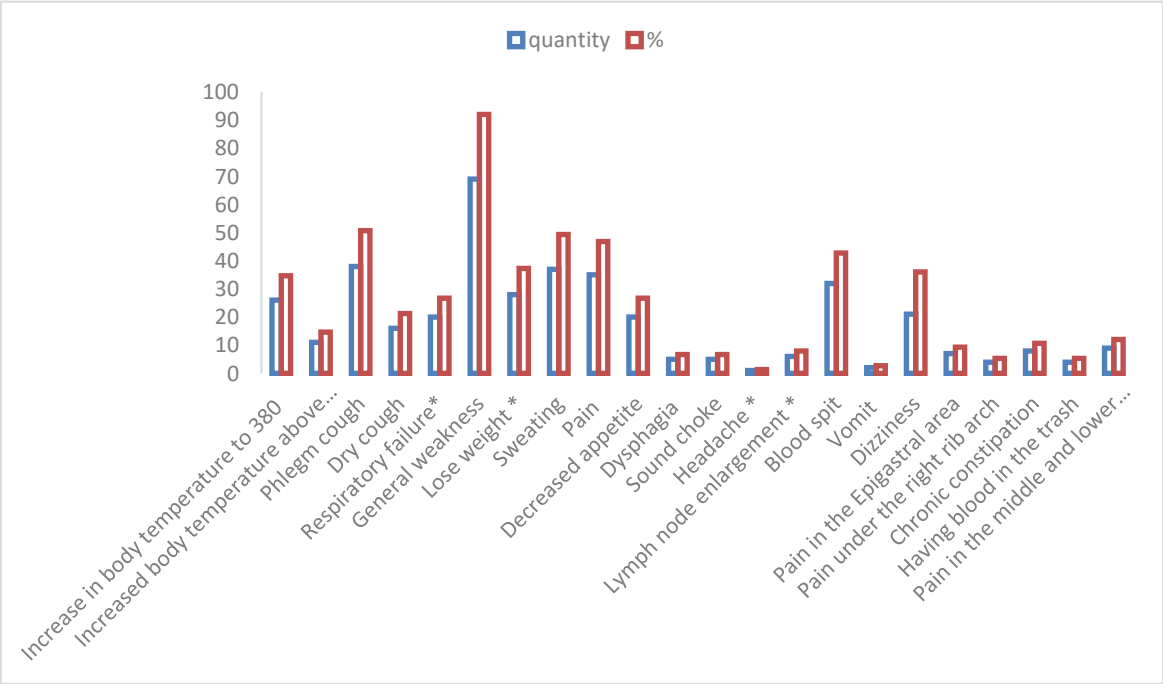
The study studied the medical history data of 135 patients who were treated in stationary conditions in the Republican specialized phthisiatrics and pulmonology Scientific Applied Medical Center, Bukhara regional phthisiatrics and pulmonology Center, Tashkent City and Bukhara regional branches of the Republican specialized oncology and radiology Scientific Applied Medical Center in 2010-2023. Together with poor quality tumors and pulmonary tuberculosis, 75 (55.6%) patients with comarbide were the main group, and 60 (44.4%) patients were the control group. In the control group, 30 (22.2%) patients were diagnosed with malignant tumors and the remaining 30 (22.2%) with pulmonary tuberculosis.

Results:

Advancements in imaging techniques have significantly improved the diagnosis of comorbid poor-quality tumors and pulmonary TB. Positron emission tomography-computed tomography (PET-CT) and magnetic resonance imaging (MRI) offer enhanced sensitivity and specificity in detecting both conditions,

enabling accurate localization and characterization of lesions. Molecular diagnostic assays, such as next-generation sequencing and polymerase chain reaction (PCR), enable precise identification of tumor subtypes and TB strains, guiding personalized treatment decisions.

In terms of treatment, targeted therapies and immunotherapies have revolutionized cancer management, offering tailored approaches with improved efficacy and reduced toxicity. Similarly, the development of new anti-TB drugs and treatment regimens holds promise for improving outcomes in TB patients, including those with comorbidities. However, challenges remain in balancing the dual treatment modalities and minimizing drug interactions and adverse effects.



1– as can be seen from the table, from the clinical signs in most cases the general weakness – 92.0%, cough – 72.0%, increase in body temperature from the norm – 49.4%, sweating – 49.3%, pain – 46.7% of cases and blood spitting-42.7.6% were observed in the patient. The incidence of clinical signs in pulmonary tuberculosis and Mossy comorbid delay was also found to be acute in large numbers and in varying patterns.

Pain in the chest area in the examination - 17 (22.7±2.3%) patients, changes in The Shape of the chest - 18 (24.0±2.4%), atrophy in the pectoral muscles - 8 (10.7±1.1%), and enlarged intercostal area-were found in 10 (13.3±1.3%) patients.

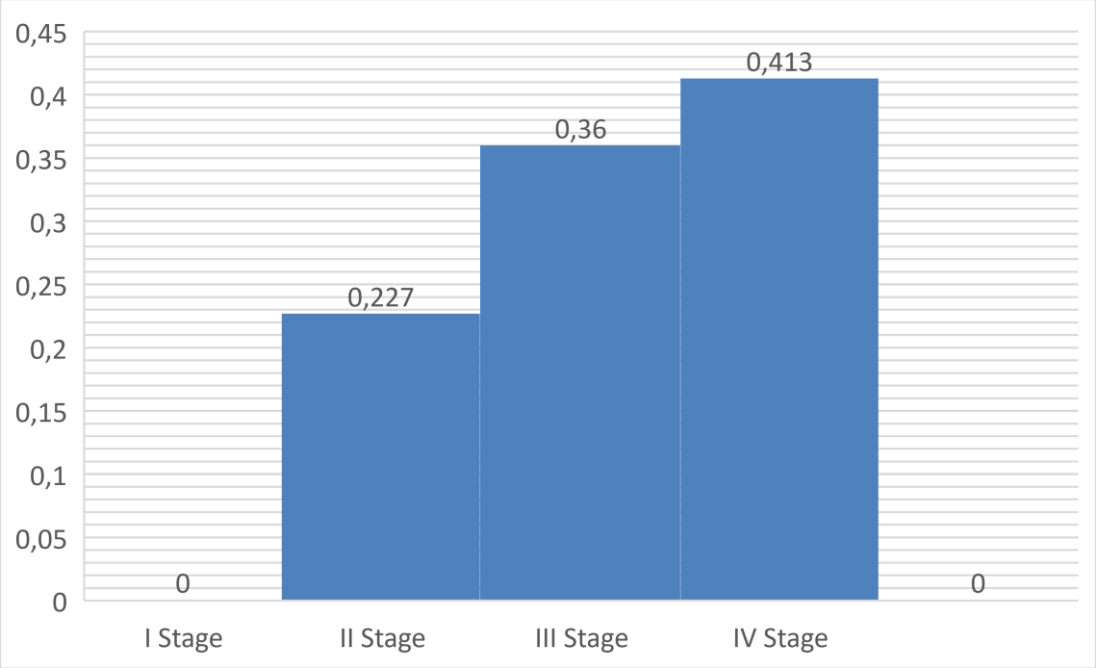
In the case of palpation of the chest – 26 (34.7±3.3%) patients, increased sound resurrection, decreased sound resurrection in 35 (46.7±4.6%) patients, and in the case of 38 (50.7±5.3), sound permeability of the bronchi was noted to be in moderation.

In pulmonary percussion, a pronounced pulmonary sound was heard in 29 (38.7±3.8%) patients, while in boxed sound - 1 (1.3±0.2%) and 45 (60.0±5.9%) patients.

When the lungs were auscultated, vesicular breathing was heard in -12 (40.0%) cases, attenuated vesicular breathing was heard in -17 (56.7%) patients, and in 1 (3.3%) cases, breathing was not heard in the lower parts of the lungs.

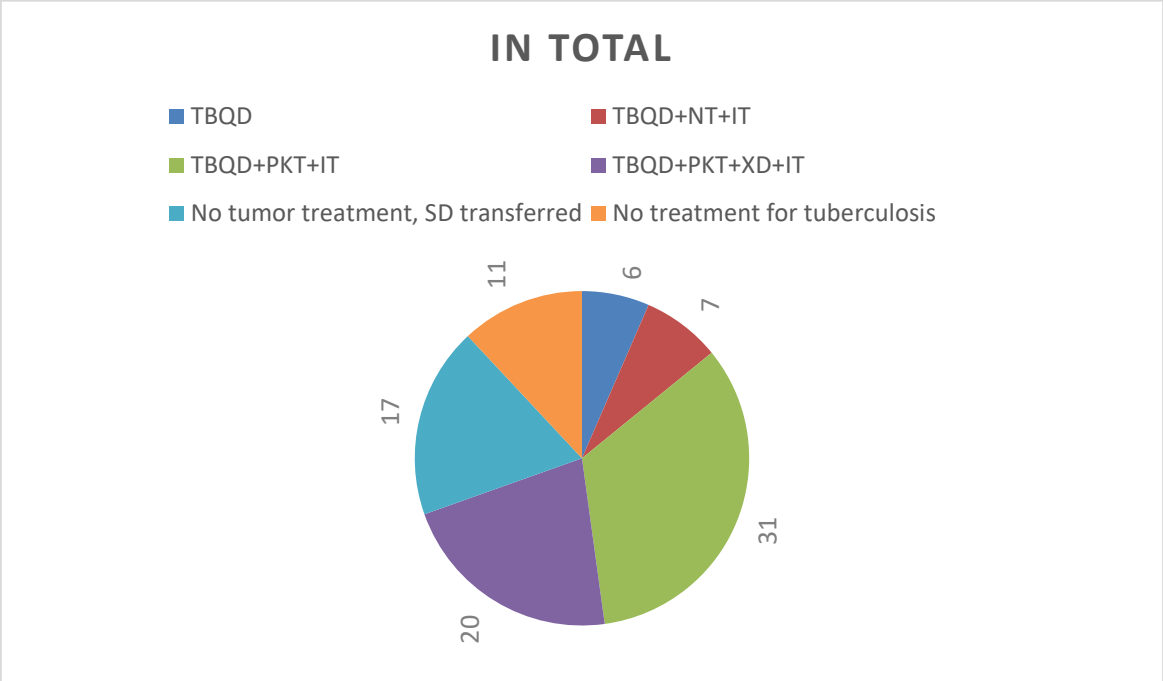
In auscultation of the lungs, 70 (93.3±4.2%) patients had - attenuated vesicular breathing, 3 (4.0±0.5%) cases - bronchial breathing, and 2 (2.7±0.3%) patients did not hear breathing in the lower parts of the lungs.

The general condition of patients was assessed on the Karnovsky scale as follows: 100 points – no, 90 points – No, 80 points – 17 (22.7%), 70 points – 29 (38.7%), 60 points – 22 (29.3%) and 50 points – 7 (9.3%).



According to the stages of the disease, it was assessed as follows: stage I – no, stage II - 17 (22.7%), stage III – 27 (36.0%), stage IV – 31 (41.3%). In the first stage of the disease, patients were not identified, in the late III and IV stages of the disease, 77.3% of patients were Yosoanized.

Right lung damage – 31 (41.3%), left lung - 28 (37.3%), and damage to both lungs-was observed in 16 (21.3%) cases. Clinical periods of pulmonary tuberculosis were assessed when patients were admitted to the stationary.



According to data from table 4.10, in 20 (26.7%) cases, surgical treatment was used as part of the complex treatment in the treatment of the disease, while in the remaining 44 (58.7%) cases it was treated conservatively. Treatment for radiotherapy and tuberculosis – 7 (9.3%) in the patient, treatment for polycymotherapy and tuberculosis (cytostatics, anti-metabolic drugs, platinum preservative, anti-tumor antibiotics, hormones,...)- In 51 (68.0%) patients, in 58 (77.3%) patients immunotherapy (cycloferon, polyoxidonium, levamizol, immunomodulin, glutaxime, as part of the complex treatment...) and a treatment combination with bisphosphanates (zoledronic acid 4 mg every 28 days) was used in case 1 (1.1%). Due to the detection of a delayed stage of a poor-quality tumor, 6 (8.0%) patients underwent treatment for tuberculosis against the background of symptomatic therapy. 64 (85.3%) out of 75 (100%) patients were treated Against Tuberculosis, of which 58 (77.3%) cases were conducted in combination with an anti-tumor treatment. 61 (81.3) patient Line 1 of anti – tuberculosis drugs: up to 55 kg – 3, 56 to 70 kg – 4, and more than 70 kg patients were prescribed 5 tablets, depending on the patient's weight - Since h75r150z400e275 (isoniazid-H, rifampicin-R, pyrazinamide-Z, etanbutol-E), and 3 (4.0%) patients have been found to have a stable MDR form of TMB, the 2nd line anti-tuberculosis drugs are aminoglycosides (capreomycin 15-20 mg\kg, kanamycin 15-20 mg\kg, amicacin 15-20 mg\\), preparations consisting of a combination of at least six different drugs, such as fluoroquinolones (levofloxacin, moxifloxacin), proteonamide, cycloserine, ethambutol, pyrazinamide, for 8 months and 9 – from month to month 24, 4 different drugs (levofloxacin 15-20 mg\kg, Cycloserine 15 mg\kg or PASK

150 mg\kg, proteinamide 15-20 mg\kg, etambutol 25 mg\kg, pyrazinamide 30-40 mg\kg) were recommended.

Vitaminotherapy (V1 5% - 2.0; V6 5% - 2.0; S 5% - 10.0; vitamin A and e preparations), cardio-hepatoprotectors (riboxin 2% - 10.0; piracetam 20% - 10.0; essential - 10.0 10 days per vein), broncholitics (euffilin 2.4% -10.0 drops per vein in addition to the solution), hemostatics, anti - cough and expectorant drugs, glucocorticoids (dexamethasone 4 mg, prednisolone 30 mg), disintoxicating and restoring the balance of proteins in the blood-plasma substitutes were used.

Patients in this group were not given vitamin V12, V9 (folic acid), anabolic hormones, biostimulant-specific drugs, and physiotherapeutic treatments, but are instead contraindicated.

The following types of surgical operations were used in the treatment of patients.

Conclusion:

In conclusion, the management of comorbid poor-quality tumors and pulmonary TB requires a multidisciplinary approach and continuous innovation. Advancements in diagnostic modalities, including imaging technologies and molecular diagnostics, have improved accuracy and personalized treatment planning. Targeted therapies and immunotherapies offer promising avenues for improving outcomes in comorbid patients, although further research is needed to optimize treatment protocols and minimize adverse effects. Interdisciplinary collaboration among healthcare professionals, researchers, and policymakers is essential to address the multifaceted challenges posed by comorbidities and drive progress towards more effective interventions.

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