



## Original Research Article

# POST TUBERCULAR SEQUELAE IN CURED TB PATIENTS: A TEACHING HOSPITAL BASED STUDY

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## ABSTRACT

**Background:** One of the most deadly infectious illnesses in the world is still tuberculosis. The goal of the current study was to evaluate post-tubercular consequences in patients with treated tuberculosis. **Materials and Methods:** Two groups of twenty-three each were created from 46 treated cases of tuberculosis of both genders. Patients in group A finished their therapy within six to nine months, while patients in group B developed multidrug-resistant pulmonary tuberculosis and finished longer-term treatments after the first course of treatment failed. **Results:** Group A had 17 males and 6 females, while group B had 19 males and 4 females. Group A, BMI was 22.8 kg/m<sup>2</sup>, while group B was 18.6 kg/m<sup>2</sup>. Group A 8-minute walk was 484.4 meters, while group B was 334.2 meters. There was a substantial difference (P<0.05). According to Table 2, graph A, the ventilatory deficit was determined to be normal in 4, mild in 14 and 1, moderate in 3 and 3, and severe in 2 and 19 in groups A and B, respectively. The difference was significant (P< 0.05). **Conclusion:** According to patients who have only had one therapy, patients with multidrug-resistant pulmonary tuberculosis who have received several treatments have more severe respiratory and functional impairment. **Keywords:** Tuberculosis, Pulmonary function test, Multidrug-Resistant Pulmonary Tuberculosis, BMI and Walk.

## INTRODUCTION

Mycobacterium tuberculosis, which causes tuberculosis, is the most contagious illness in the world, impacting one-third of the population and a leading cause of death globally. An estimated 10.4 million persons contracted tuberculosis (TB) in 2017, and 1.3 million of those cases resulted in death. Due to the effects of HIV, persistent poverty, and food insecurity, as well as treatment difficulties including the emergence of drug-resistant TB, TB-related morbidity and mortality are still particularly high in African nations.<sup>[1]</sup> The elimination of active infection while preventing resistance and recurrence, accomplished with multidrug antimicrobial treatment, has been the definition of treatment success in tuberculosis for the past forty years.<sup>[2]</sup> The incidence and prevalence of active TB, TB death rates, and disability-adjusted years of life lost due to active TB are all included in current estimates of the global TB disease burden. However, DALYs lost due to long-term disability resulting

from TB sequelae or decreased longevity in patients deemed cured are not taken into account.<sup>[3]</sup> With extremely high rates of morbidity and mortality, tuberculosis remains a chronic infection. An estimated 8.9 million new cases and 1.6 million fatalities occur globally each year. When it comes to the number of TB cases, Brazil ranks 19th in the globe, and the state capital of Porto Alegre has the greatest prevalence of the illness.<sup>[4]</sup> Patients who have recovered from tuberculosis may exhibit nodular infiltrates, fibrosed lung parenchyma, cavities, or a combination of these pulmonary diseases. The wide range of lung function decline following tuberculosis may be related to host-pathogen interactions and the various immunological processes that may ensue.<sup>[5]</sup> The goal of the current study was to evaluate post-tubercular consequences in patients who had been cured of tuberculosis.

## MATERIALS AND METHODS

The present study was conducted in the Department of Respiratory Medicine, World College of Medical Sciences Research and Hospital, Jhajjar with the aim of assessing post tubercular sequelae in cured TB patients. The current study included 46 participants in total. The institutional ethical committee granted ethical approval, and all patients provided written consent after being fully informed of the research procedure. Every patient's complete data was recorded in a Performa. The patient's profile included their name, age, gender, and other details. Two groups of twenty-three patients each were created. Patients in group A finished their therapy within six to nine months, but patients in group B developed multidrug-resistant pulmonary tuberculosis and finished extended therapies after the first treatment gave up. Spirometry was used to measure lung function, manovacuometry was used to measure respiratory muscle strength, and an 8-minute walk was taken. At the conclusion of treatment, chest radiographs were taken. The resulting results were statistically examined. A P-value of less than 0.05 was deemed significant.

## RESULTS

The mean ages of the participants was  $48.24 \pm 8.36$  years (Mean $\pm$ SD). There were 78% men and 21.73% women. Illiteracy was seen in 34% while only 6.5% were graduate. In accordance with Table I, group A had 17 males and 6 females, while group B had 19 males and 4 females. Group A BMI was 22.8 kg/m<sup>2</sup>, while group B was 18.6 kg/m<sup>2</sup>. Group A 8-minute walk was 484.4 meters, while group B was 334.2 meters. There was a substantial difference ( $P < 0.05$ ). According to Table 2, graph A, the ventilatory deficit was determined to be normal in 4, mild in 14 and 1, moderate in 3 and 3, and severe in 2 and 19 in groups A and B, respectively. The difference was significant ( $P < 0.05$ ).

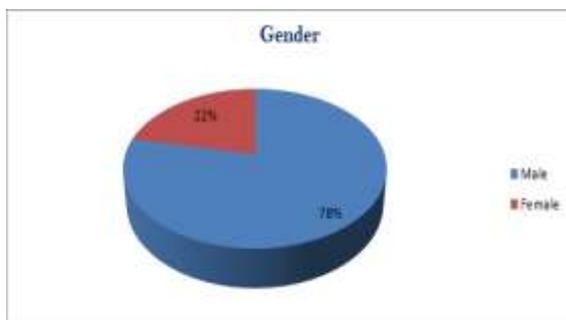


Figure 1: Shows the male and female participants

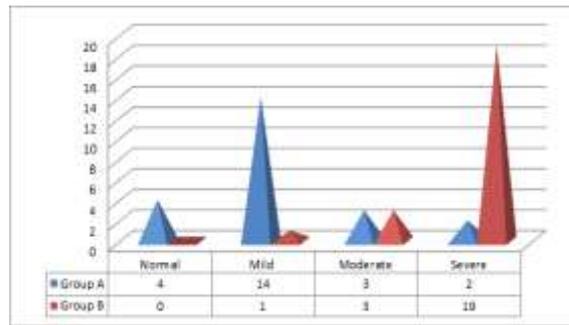


Figure 2: Shows the functional pulmonary testing

## DISCUSSION

The bacteria that causes tuberculosis worldwide is *Mycobacterium tuberculosis*. Although it can affect other organs of the body, it primarily affects the lungs. When someone with pulmonary tuberculosis coughs, sneezes, sings, or talks, they release bacteria into the air, which spreads the illness.<sup>[6]</sup> Over 9 million new cases of tuberculosis are recorded each year, and approximately one-third of the world's population has either extrapulmonary or pulmonary tuberculosis. It is expected that between 1995 and 2014, 85% (66 million instances) of reported cases of drug-susceptible pulmonary tuberculosis were successfully treated.<sup>[7]</sup> Despite receiving a bacteriological cure, up to half of pulmonary TB survivors still have some kind of long-term lung function impairment. The risk of dying from a respiratory cause can be raised by pulmonary function impairment, which can range from mild to severe.<sup>[8]</sup> Therefore, the purpose of this study was to evaluate post-tubercular consequences in TB patients who had been treated. In the current study, the BMI was 22.8 kg/m<sup>2</sup> in group A and 18.6 kg/m<sup>2</sup> in group B; the 8-minute walk distance was 484.4 meters in group A and 334.2 meters in group B. Naso et al,<sup>[9]</sup> included patients with multidrug-resistant pulmonary tuberculosis who finished treatment within 6-9 months (group A) and those who finished longer treatments after the initial treatment failed (group B). We assessed lung function using spirometry, respiratory muscle strength using manovacuometry (MEP, or maximum expiratory pressure, and MIP, or maximum inspiratory pressure), and the distance covered in an 8-minute walk. In the current investigation, we discovered that the ventilatory abnormality was normal in 4, mild in 14 and 1, moderate in 3 and 3, and severe in 2 and 19 in groups A and B, respectively. Guidelines for the treatment of tuberculosis state that the most effective pharmaceuticals should be used as the first line of treatment, followed by alternate therapies if treatment is unsuccessful. Approximately 1.5% of treatment results in Brazil result in medication resistance due to treatment noncompliance, which is a significant public health issue.<sup>[10]</sup> Through motor impairments brought on by physical deconditioning, the pathophysiological alterations of pulmonary

tuberculosis shown in individuals who received several treatments can result in systemic abnormalities.<sup>[11]</sup> According to a different study, tuberculosis (TB) results in a chronic restriction of airflow, which worsens with repeated exposure. Patients with multidrug-resistant tuberculosis seem to be more likely to have the mixed condition.<sup>[12]</sup>

## CONCLUSION

These findings suggest that even after anti-TB drugs are successfully administered, people with tuberculosis have a substantial degree of residual lung function impairments. Individuals who have received numerous treatments for multidrug-resistant pulmonary tuberculosis have more severe respiratory and functional damage than those who have received only one treatment.

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