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Research Article

**A CROSS SECTIONAL ANALYSIS OF MISSED PULMONARY  
TUBERCULOSIS IN THE GENERAL MEDICAL INPATIENT  
WARDS**Dr Samavia Rauf<sup>1</sup>, Dr Sofia Noreen<sup>1</sup>, Dr Muhammad Tehseen Ahmad<sup>2</sup><sup>1</sup>Rawalpindi Medical University Rawalpindi, <sup>2</sup>Rawalpindi medical college.**Article Received:** August 2020**Accepted:** September 2020**Published:** October 2020**Abstract:**

**Introduction:** Tuberculosis is a major health problem in Brazil. It is estimated that only 75% of all cases are detected, and that 76% of them are cured.

**Objectives:** The main objective of the study is to analyse the missed pulmonary tuberculosis in the general medical inpatient wards.

**Material and methods:** This cross sectional study was conducted in Rawalpindi Medical University Rawalpindi during June 2019 to March 2020. Using a standard chart, we recorded the patient identification, place of origin, lasting of symptoms, reason for admission, previous pulmonary Tb records, HIV serum testing, location of Tb and way of diagnosing, side effects presented to the antituberculosis therapy during hospitalization, need to be transferred to the ICU or the respiratory isolation ward, hospitalization time.

**Results:** The data was collected from 120 patients of pulmonary TB. The mean duration of symptoms upon admission was 2.9 months. Previous Tb was reported by 32 patients (23%), 37.5% of which had been discharged, 34.4% had abandoned Tb treatment, 15.6% were under treatment upon admission, and 12.5% were admitted due to multi-resistant Tb (MRTB). Serum testing for HIV was positive in 42% of the studied patients. HIV-positive patients presented a higher occurrence of extrapulmonary Tb.

**Conclusion:** It is concluded that TB cases are being "missed" in the general medical inpatient wards in hospitals in Pakistan.

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**INTRODUCTION:**

Tuberculosis is a major health problem in Brazil. It is estimated that only 75% of all cases are detected, and that 76% of them are cured. The low cure percentage is due mainly to the high dropout rate from treatment, especially in the big cities, which can lead, on the long run, to an increase in the number of tuberculosis cases and of patients with resistance to treatment. The detection of new cases depends fundamentally on the qualification and continued education of the health teams, since most of the cases do not require sophisticated tests, a chest X-ray and sputum test being sufficient for a first evaluation [1].

When the basic health system fails whether because of difficulties of access by the patient, or because of a low resolving capacity of the health teams, an increased number of tuberculosis cases diagnosed at hospitals is observed, usually corresponding to severer cases, with longer lasting symptoms and even an increase in mortality [2].

Tuberculosis (TB) is a major cause of morbidity and mortality. According to the World Health Organization, in 1998, 16 million people worldwide were infected with *Mycobacterium tuberculosis*, 7 million developed active disease, and almost 2 million died of TB. Approximately 250,000 new episodes of TB and 60,000 deaths secondary to TB were reported in Latin America and the Caribbean [3].

Nosocomial transmission of *M. tuberculosis* has been well documented in the United States and Europe. In these outbreaks, a patient with TB was the source, and patient-to-health care worker (HCW), patient-to-patient, and HCW-to-patient transmissions have been documented. In most outbreaks, affected HCWs have been those directly involved in patient care (e.g., HCWs in emergency departments [EDs], inpatient medical wards, and inpatient HIV wards). Less commonly, *M. tuberculosis* transmission to HCWs during autopsies, wound irrigation, bronchoscopy, and in the intensive care setting has been documented. None of the published outbreaks has involved laboratory personnel [4].

Hospital has a ward with biosafety items for pulmonary tuberculosis, consisting of rooms with permanently closed doors and windows, in addition to

a negative-pressure ventilation system that allows a minimum of six to twelve air volume exchanges per hour. Before reaching the outside of the ward, the air coming from the isolation units passes through a highly efficient filter system, capable of retaining particles as small as those containing micobacteria in suspension. Patients with a diagnosis of any form of TB and patients who were referred for sputum testing for suspected TB disease, were excluded from the study analyses. All included patients were also requested to submit a morning sputum sample for smear microscopy and GeneXpert testing.

**Objectives:**

The main objective of the study is to analyse the missed pulmonary tuberculosis in the general medical inpatient wards.

**MATERIAL AND METHODS:**

This cross sectional study was conducted in Rawalpindi Medical University Rawalpindi during June 2019 to March 2020. Using a standard chart, we recorded the patient identification, place of origin, lasting of symptoms, reason for admission, previous pulmonary Tb records, HIV serum testing, location of Tb and way of diagnosing, side effects presented to the antituberculosis therapy during hospitalization, need to be transferred to the ICU or the respiratory isolation ward, hospitalization time.

The collected data were entered and analyzed by a statistical computer program (*STATA*<sup>®</sup>). Chi-square and Fisher's tests (whenever at least one of the expected frequencies was < 5) were used. Values with  $p < 0.05$  were considered significant.

**RESULTS:**

The data was collected from 120 patients of pulmonary TB. The mean duration of symptoms upon admission was 2.9 months. Previous Tb was reported by 32 patients (23%), 37.5% of which had been discharged, 34.4% had abandoned Tb treatment, 15.6% were under treatment upon admission, and 12.5% were admitted due to multi-resistant Tb (MRTB). Serum testing for HIV was positive in 42% of the studied patients. HIV-positive patients presented a higher occurrence of extrapulmonary Tb. No statistically significant relationship was observed between positive HIV status and lower body weight of the patients.

**Table 01:** Location and frequency of TB

Location	Frequency
Pulmonary	54.6%
Ganglial	12.8%
Meningeal	11.3%
Disseminated/miliary	11.3%
Pleural	5.0%
Genitourinary	1.4%
Ocular	1.4%
Osseous	1.4%
Intestinal	0.7%

A comparison between the main reasons for hospitalization and its duration showed a longer hospitalization period in patients admitted for cachexia, and a higher lethality among those with acute respiratory failure and cachexia.

**Table 02:** Relationship between main reason for hospital admission and hospitalization time

Reasons	Mean hospitalization time	Death
Acute respiratory failure	19.3 days	27.3%
Hemoptysis	12.1 days	–
Cachexia	32.2 days	25.8%
Diagnosis	26.9 days	15.2%
Multiresistant Tb	29.3 days	-
Previous AIDS	26.7 days	11.50%

### DISCUSSION:

In both low and high TB burden countries, there is evidence that TB cases are missed by the health services, either due to misdiagnosis as something else or due to a lack of clinical suspicion. Missing TB cases has implications for both the individual and the community. Delaying treatment increases the period of infectiousness and thus the chance of transmission in both HFs and in the community [5]. Furthermore, the severity of the disease worsens imposing higher medical costs for the patient and health system, with resultant poorer treatment outcomes. South African and British hospitals implemented a ‘TB process-based performance tool’ as a novel method to evaluate accurate and timely diagnosis of TB disease, which helped also to assess the missed opportunities for TB diagnosis [6]. It was found that simple clinical actions were omitted in many cases. For example, chest symptoms were not recorded for 39% of cases and sputum smear examination was not done in 85% of patients. Omission of basic history taking and request of sputum smear are common to nearly all settings [7].

The risk of TB transmission to patients and HCWs in the health care setting has been recognized for many years and adequate adherence to IC measures is key [8]. TB disease among HCWs is not routinely

monitored in Ethiopia and measurement of nosocomial transmission is difficult since undiagnosed TB patients are an important source of transmission [9].

### CONCLUSION:

It is concluded that TB cases are being “missed” in the general medical inpatient wards in hospitals in Pakistan. TB diagnosis requires that HCWs have a high degree of suspicion for TB disease and adhere to basic clinical practice and national TB guidelines.

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