

CLINICAL PROFILE AND SPUTUM POSITIVITY RATE OF SUSPECTED PULMONARY TUBERCULOSIS PATIENTS PRESENTING TO A TERTIARY CARE HOSPITAL IN SOUTHERN RAJASTHAN

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ABSTRACT

Objective: The purpose of the study is to understand the sputum acid-fast bacilli (AFB) positivity rate among suspected pulmonary tuberculosis (TB) patients presenting to tertiary care hospital in Southern Rajasthan with symptoms of chronic cough for more than 2 weeks.

Methods: It is a retrospective observational study. Data from June 2021 to March 2024 were collected from registers maintained by the respiratory medicine department and analyzed.

Results: Out of 1720 sputum samples of suspected pulmonary TB patients that were sent for microscopy 344 were AFB positive (20%) and 292 patients (16.97%) were GeneXpert positive. A total of 21 patients (1.22%) were found to have multidrug-resistant (MDR)-TB based on sputum GeneXpert testing. Most of the patients in our study were males and the sputum positivity rate was higher among diabetic and HIV-positive patients.

Conclusion: In this study out of 1720 sputum samples analyzed for suspected pulmonary TB patients, 344 were sputum AFB positive (20%) and 21 were MDR-TB (1.22%).

Keywords: Pulmonary tuberculosis, Multidrug-resistant-tuberculosis, Sputum acid-fast bacilli positivity rate.

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INTRODUCTION

Pulmonary tuberculosis (TB) poses a significant health burden in India causing high morbidity and mortality [1]. The majority of patients presenting to the respiratory outpatient department of medical college in India are TB patients. There is a rising incidence of multidrug-resistant (MDR) TB cases the causes of which are multi-factorial [2]. The aim of this study was to estimate the sputum acid-fast bacilli (AFB) smear positivity rate and also the prevalence of MDR TB cases among patients suspected to have pulmonary TB presenting to tertiary care hospital in Southern Rajasthan.

METHODS

It is a retrospective observational study. Duration of the study: 34 months (June 2021–March 2024). Data were collected retrospectively from registers maintained in the respiratory medicine department of our hospital. Inclusion criteria were as follows: All patients suspected of having pulmonary TB (cough more than 2 weeks) whose sputum samples were sent for analysis for AFB smear testing and GeneXpert. Exclusion criteria were all patients with extra-pulmonary TB.

RESULTS

The total samples tested during the study period were 1720 sputum samples. Total number of males in our study were 1140 (66.27%) and females were 580 (33.72%). Total sputum AFB smear-positive patients by sputum microscopy were 344. Hence, percentage of sputum AFB smear-positive patients was 20%. Total number of patients whose sputum GeneXpert MTB was positive were 292. Hence, the percentage of sputum GeneXpert positive was 16.97%. Total number of R-resistant (MDR TB) cases detected during the study period were 21. The percentage of MDR pulmonary TB cases in all sputum samples tested

was 1.22%. The total number of diabetic patients in our study was 191 out of which 63 were having pulmonary TB (32.98%). The total number of HIV-positive patients in our study was eight out of which two were positive for pulmonary TB (25%).

DISCUSSION

Out of 1720 sputum samples received for testing of suspected pulmonary TB patients, 20% were AFB smear positive by microscopy and 16.97% were positive by GeneXpert. The probable reason why GeneXpert-positive patients were fewer is because not all sputum AFB smear-positive patients underwent GeneXpert testing. In another study conducted by Yohanes *et al.* [1], the overall incidence of smear-positive pulmonary TB was 14.2% among 113 suspects of pulmonary TB who had a cough for more than 2 weeks. Mantefardo *et al.* conducted a similar study on 220 suspect pulmonary TB patients and found a sputum positivity rate of 18.2% which is close to our study [2]. The total number of males in our study was significantly more than females (66.27% vs. 33.72%) highlighting the fact that male patients were more likely to present with symptoms of pulmonary TB, and hence, most sputum samples that were sent for analysis were of male patients. Total number of MDR TB cases detected in our study were 21 (1.22%) which is almost similar to the national average of 2–3% among newly diagnosed pulmonary TB cases. There were a significant number of diabetic patients in our study and showed a higher incidence of sputum positivity (32.98%). This study shows that diabetic patients were more likely to have sputum-positive pulmonary TB than the non-diabetic population. The total number of HIV-positive patients in our study was low (n=8) but two of them were positive for pulmonary TB (25%). In another study conducted by Sharma *et al.*, the prevalence of drug-resistant TB among new sputum-positive pulmonary TB patients was 1.1% [3]. Drug resistance surveys in several states in India have shown that the prevalence of MDR TB

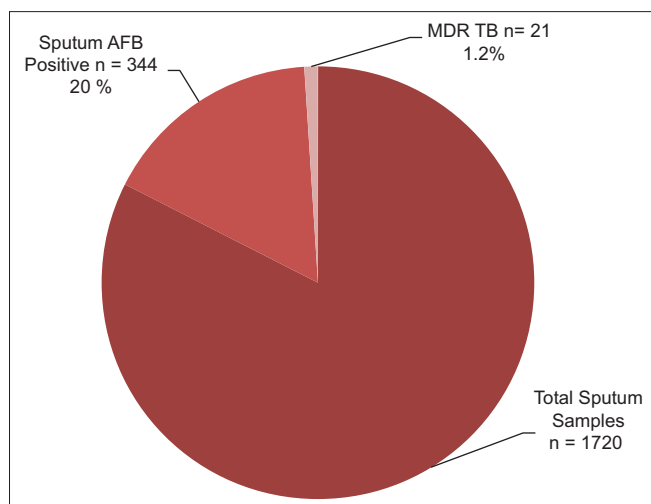


Fig. 1: Percentage of sputum acid-fast bacilli smear-positive samples by microscopy and multidrug-resistant-tuberculosis positive patients by GeneXpert testing

in India is 2–3% among new cases and 12–17% among re-infection cases [4,5].

CONCLUSION

Our study showed that among 1720 sputum samples tested of suspect pulmonary TB patients, sputum AFB smear was positive in 20% of patients with most of the patients being males. Out of total 344 sputum-positive pulmonary TB cases, 21 had MDR TB based on GeneXpert testing (1.22%). The incidence of sputum-positive pulmonary TB patients was higher in diabetic and HIV patients.

INSTITUTIONAL ETHICAL COMMITTEE APPROVAL

Was taken before starting the study.

AUTHORS' CONTRIBUTIONS

Study done by Dr. Amit Satish Gupta (Associate Professor, Pulmonary Medicine, Geetanjali Medical College and Hospital, Udaipur). Dr. Hirenkumar Punjabhai Hadiya (3rd year postgraduate resident) and Dr. Amar Gahlot (2nd year postgraduate resident) helped in the data collection of patients.

CONFLICTS OF INTEREST

Nil.

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