

Evaluation of Pulmonary Tuberculosis in Pediatric Patients: An Institutional Based Study

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ABSTRACT

Background: India has one of the highest tuberculosis (TB) burdens globally. Because the majority of children are sputum microscopy smear negative, these data underestimate the true burden of childhood TB. Hence; the present study was undertaken for assessing pulmonary tuberculosis among pediatric patients.

Materials & Methods: A total of 50 pediatric patients with confirmed diagnosis of pulmonary tuberculosis were enrolled in the present study. Complete demographic and clinical details of all the patients were obtained. A Performa was made and was filled by guardians of all the patients for obtaining the complete medical and family history of all the patients. All the patients were within the age group of less than 18 years. All the results were summarized in Microsoft excel sheet and were analyzed by SPSS software.

Results: Hematological comorbidity was found to be present in 8 percent of the patients. Malnutrition was found to be present in 14 percent of the patients. In the present study, the most common clinical manifestation encountered was cough, fever, weight loss lymphadenopathy, hyporexia etc. Cough and fever were found to be present in 84 percent and 42 percent of the patients respectively.

Conclusion: Periodic checking of pediatric population with cough and fever should be done regularly to screen tuberculosis.

KEYWORDS: Pediatric, Pulmonary Tuberculosis.

INTRODUCTION

Tuberculosis (TB) was defined by the detection of *Mycobacterium tuberculosis* in culture, smear microscopy (bacillus resistant acid - BAAR), or histopathology indicative of TB, evidencing a chronic granulomatous inflammatory process with caseous necrosis.¹⁻³

India has one of the highest tuberculosis (TB) burdens globally, accounting for 20% of the new 8.6 million TB cases annually. While the burden of childhood TB in India is not known, regional data from the World Health Organization (WHO) indicate that sputum microscopy smear-positive TB in children (<14 years old) accounts for 0.6%–3.6% of all reported cases. However, because the majority of children are sputum microscopy smear negative, these data underestimate the true burden of

childhood TB. It is estimated that childhood TB constitutes 10–20% of all TB in high-burden countries, accounting for 8–20% of TB-related deaths.⁴⁻⁷ Hence; the present study was undertaken for assessing pulmonary tuberculosis among pediatric patients.

MATERIALS & METHODS

The present study was conducted with the aim of assessing the pulmonary tuberculosis in pediatric patients. Ethical approval was obtained from institutional ethical committee and written consent was obtained from parents/guardians of all the patients after explaining in detail the entire research protocol. A total of 50 pediatric patients with confirmed diagnosis of pulmonary tuberculosis were enrolled in the present study.

Complete demographic and clinical details of all the patients were obtained. A Performa was made and was filled by guardians of all the patients for obtaining the complete medical and family history of all the patients. All the patients were within the age group of less than 18

years. All the results were summarized in Microsoft excel sheet and were analyzed by SPSS software. Chi-square test was used for assessment of level of significance. P- value of less than 0.05 was taken as significant.

Table 1: Demographic data

Parameter		Number of patients	Percentage
Age group (years)	Less than 10	12	24
	10 to 14	25	50
	15 to 18	13	26
Gender	Males	29	58
	Females	21	42

Table 2: Type of co-morbidity

Type of co-morbidity	Number of patients	Percentage of patients
Hematological	4	8
Malnutrition	7	14
Others	3	6

Table 3: Clinical manifestations

Clinical manifestations	Number of patients	Percentage of patients
Cough	42	84
Fever	21	42
Weight loss	16	32
Lymphadenopathy	12	24
Hyporexia	5	10
Others	6	12

RESULTS

In the present study, a total of 50 patients with pulmonary tuberculosis were enrolled. Mean age of the patients of the present study was 12.8 years. Majority of the pediatric patients with pulmonary tuberculosis belonged to the age group of 10 to 14 years. There were 29 males and 21 females. Hematological comorbidity was found to be present in 8 percent of the patients. Malnutrition was found to be present in 14 percent of the patients. In the present study, the most common clinical manifestation encountered was cough, fever, weight loss lymphadenopathy, hyporexia etc. Cough and fever were found to be present in 84 percent and 42 percent of the patients respectively.

DISCUSSION

Children with a compatible clinical and radiological condition and a history of exposure to TB or positive tuberculin test were also considered cases of active TB (≥ 5 mm in non-BCG vaccinated children, children vaccinated for more than 2 years and immunosuppressed, or ≥ 10 mm in children vaccinated

for less Tuberculosis (TB) in Brazil presents a major public health challenge.⁷⁻⁹ Although a history of epidemiological nexus was identified in few children, an active search for pediatric cases from index cases continues to represent one of the most effective tools for identifying the infection.⁸ Hence; the present study was undertaken for assessing pulmonary tuberculosis among pediatric patients.

In the present study, a total of 50 patients with pulmonary tuberculosis were enrolled. Mean age of the patients of the present study was 12.8 years. Majority of the pediatric patients with pulmonary tuberculosis belonged to the age group of 10 to 14 years. There were 29 males and 21 females. Hematological comorbidity was found to be present in 8 percent of the patients. Buonsenso D et al assessed pediatric tuberculosis in two tertiary hospitals. Two hundred fourteen cases of active tuberculosis were identified (132 definite, 82 probable). Pulmonary involvement was the most common form (75.5%), followed by lymphadenopathy (15.4%) and central nervous system TB (11%). Fever (51.86%) and

cough (40%) were the most common presenting symptoms. A total of 23.4% of children were asymptomatic on admission. History of contact with a patient with active TB was associated with pulmonary TB ($P = 0.0014$), whereas negative history of contact was associated with lymph node ($P = 0.0064$) and central nervous system TB ($P = 0.05$). Their study emphasized the difficulty in managing children with suspected TB, because the absence of constitutional symptoms cannot exclude TB, and bacteriologic confirmation is the exception.²

In the present study, malnutrition was found to be present in 14 percent of the patients. In the present study, the most common clinical manifestation encountered was cough, fever, weight loss lymphadenopathy, hyporexia etc. Cough and fever were found to be present in 84 percent and 42 percent of the patients respectively. Jain SK et al analyzed children (≤ 5 years) with suspected TB at a tertiary hospital in Pune, India. Detailed clinical evaluation, HIV testing, mycobacterial cultures, and drug susceptibility testing were performed. 223 children with suspected TB were enrolled. The median age was 31 months, 46% were female, 86% had received BCG, 57% were malnourished, and 10% were HIV positive. 12% had TB disease (definite or probable), 35% did not have TB, while TB could not be ruled out in 53%. Extrapulmonary disease was noted in 46%, which was predominantly meningeal. Tuberculin skin test (TST) was positive in 20% of children with TB. Four of 7 (57%) children with culture-confirmed TB harbored drug-resistant (DR) strains of whom 2 (50%) were multi-DR (MDR). In adjusted analyses, HIV infection, positive TST, and exposure to household smoke were found to be significantly associated with children with TB. Mortality (at 1 year) was 3 of 26 (12%) and 1 of 79 (1%), respectively, in children with TB and those without TB. Diagnosis of TB is challenging in young children, with high rates of extra-pulmonary and meningeal disease.¹⁰

CONCLUSION

From the above results, it can be concluded that periodic checking of pediatric population with cough and fever should be done regularly to screen tuberculosis. However; further studies are recommended.

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