

Clinical Profile of Paediatric Cases with Tuberculosis

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Abstract: Tuberculosis (TB) is a global health problem with India contributing more than 40% of the total infected population. TB among children is important for health care professionals since it is an indicator of the recent transmission of TB in the community. iagnosis of TB among children may be more challenging in resource-poor settings. Clinical presentation may depend on the epidemiological situation of TB. Diagnostic methods followed for childhood TB may vary depending on the available resources in the health-care setting. The present study aims to analyse the clinical profile of children with tuberculosis and determine factors that can aid in diagnosis. Clinical and epidemiological features associated with different types of TB were analyzed. In the present study 140 children had clinical and lab evidence of tuberculosis and received anti tubercular therapy. From the list of 140 cases obtained from DOTS register, case sheets of 16 children could not be traced. Median age of the children was 7.9 years (range :3 to 12 years). Paediatric TB is common in our setting. This study supports the use of history and clinical features to diagnose childhood tuberculosis.

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I. Introduction

Tuberculosis (TB) is a global health problem with India contributing more than 40% of the total infected population [1] . The burden of childhood tuberculosis is unclear but 10% of the total tuberculosis load is found in children.[2] Pulmonary TB is more commonly seen in children less than 5 years of age. [3] TB among children is important for health care professionals since it is an indicator of the recent transmission of TB in the community. Contact investigations of paediatric TB patients may lead to improved case-finding among adult patients [4]. However, the national TB control programs lay more emphasis on sputum smear-positive adult TB cases since they are highly infectious. As a result childhood TB is often neglected by TB control programs due to the difficulties in confirming diagnosis, over estimating the protective efficacy of BCG vaccine [5]. Moreover, diagnosis of TB among children may be more challenging in resource-poor settings. Clinical presentation may depend on the epidemiological situation of TB. Diagnostic methods followed for childhood TB may vary depending on the available resources in the health-care setting. The present study aims to analyse the clinical profile of children with tuberculosis and determine factors that can aid in diagnosis.

II. Methodology

In this study children with pulmonary tuberculosis are followed up in the TB clinic and in patient admission. Children with active Tuberculosis are admitted in the isolation wards. All children less than 15 years of age who were diagnosed to have Pulmonary TB were studied. Children were defined to have pulmonary tuberculosis if along with involvement of lung parenchyma, their culture from diseased site grew the tuberculous bacteria or histopathology was suggestive of caseous granulomas or they were in contact with an adult having tuberculosis or had positive tuberculin skin test (Montoux). A detailed clinical history and physical examination was done in all patients. History of BCG vaccination, past TB or contact with TB was elicited and growth parameters such as height and weight were noted. Malnutrition was determined if weight or height was less than 5th percentile for age as per Agarwal's charts [6]. Investigations like haemogram, ESR, chest X-ray, TST by mantoux test (5 TU) were done at start of therapy. Specific investigations such as body fluid analysis, other imaging studies, biopsy and culture were done as and when required. All patients were receiving anti TB treatment (ATT) as per revised national tuberculosis control program (RNTCP) guidelines.[7] Drug resistant (DR) TB was determined by drug sensitivity testing (DST) on positive TB culture tests. Clinical and epidemiological features associated with different types of TB were analyzed by SPSS software and the results are analysed and discussed.

III. Results

In the present study 140 children had clinical and lab evidence of tuberculosis and received anti tubercular therapy. From the list of 140 cases obtained from DOTS register, case sheets of 16 children could not be traced. Median age of the children was 7.9 years (range :3 to 12 years). Age distribution of TB patients was similar in all age groups. Male to female ratio was 1:1.2 (M;F). The most common presenting symptoms were fever, cough, lymph node swelling and pain.[Table 1]

| COMPLAINT | NO OF PATIENTS N= 124 |
|---------------------------|-----------------------|
| LOW GRADE FEVER - CHRONIC | 55 (43.5%) |
| COUGH | 40 (32%) |
| Swelling - Lymph Node | 18 (15%) |
| Loss of Appetite | 5 (5%) |
| SOB | 2 (1.6%) |
| Significant weight loss | 2 (1.6%) |
| Others | 2 (1.6%) |

Table 1 : Presenting symptoms of children with tuberculosis in the study group.

Most common form of tuberculosis was pulmonary TB followed by extra-pulmonary TB. Distribution of types of TB according to age groups is shown in table 2. Pulmonary TB was common in younger age group as compared to extra-pulmonary TB which was common in older age group. This difference was statistically significant. Distribution of type of TB among male and female patients was not statistically significant (p = 0.39).

| | | |
|----------------------------|----|------|
| Isolated Pulmonary TB | 92 | 74% |
| Isolated Extrapulmonary TB | 26 | 21% |
| Combined | 5 | 4% |
| Disseminated | 1 | 0.8% |

Table 2 : Type of tuberculosis in the study group.

Immunisation history for BCG or presence of BCG scar was present in 71 (57.7%) patients and absent in 18 (14.3%) patients. For 34 (28%) patients information was not available. Out of 124 cases reviewed, HIV spot test was positive in eight children. History of contact with a case of TB was present for 47 (38 %) out of 124 patients. Microscopy was positive in a small proportion (< 20%) of children in both pulmonary and extra-pulmonary TB and none in disseminated TB. Sputum for AFB was not done for 11 of 45 children who were aged above 10 years. Mantoux test was done for 92 children diagnosed as PTB and 66% of them had a positive test (induration of at least 10 mm was considered as positive) [8] . Mantoux test was done for 26 children diagnosed as EPTB and 71% of the children were tested positive. However, BCG test was done for only 31 children diagnosed as PTB and for 15 children diagnosed as EPTB. Overall, BCG test was done for 49 patients and was positive in more than 90% of both PTB and EPTB patients. Chest radiograph was positive in 96% of PTB patients and 68% of EPTB patients. Lymph node TB was mainly diagnosed by FNAC. FNAC was positive for TB in 18 of them.

IV. Discussion

Usually children <5 years of age, and those who are malnourished are found to be more frequently affected.[9] But, our study shows that pulmonary TB affects all age groups with a mean age of 7.9 years. The reason behind this slightly older age group may be due to inability to get tissue cultures in younger children. Also, malnutrition was found in only 40% of the patients. The protective efficacy of BCG vaccination is known [10] but in the present study pulmonary TB was seen in children who had received BCG immunization. This indicates that there is still a significant chance of developing pulmonary TB even in the presence of BCG vaccination. A positive Mantoux test also supports diagnosis of TB and has been used for circumstantial evidence for diagnosis of TB. However, a negative mantoux test does not rule out diagnosis of TB. [11] Mantoux test was found to be positive in more than half the patients in our study. Chest X-ray is routinely done

to aid the diagnosis of TB in children. The most common chest X-ray findings in pulmonary tuberculosis are similar to the findings in other study done by Krysl et al. [12]

Limitation of our study is, it is a hospital-based study, we may have noted a different pattern in the clinical features and preponderance of the disease. On a whole, diagnosis of TB was not systematic and mostly based on a combination of epidemiological and clinical suspicion supported by results of various investigations.

V. Conclusion

Paediatric tuberculosis is common in our setting. This study supports the use of history and clinical features to diagnose childhood tuberculosis.

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