ORIGINAL RESEARCH PAPER

Paediatrics

CLINICAL PROFILE OF CHILDHOOD TUBERCULOSIS IN MAHATMA GANDHI HOSPITAL JAIPUR

KEY WORDS: childhood tb ,clinical profile

Dr. Mohit Goyal Resident Department of Pediatrics Mahatma Gandhi Hospital Jaipur,Rajasthan.

Dr Jitendra Kumar Gupta* Assistant professer Department of Pediatrics Mahatma Gandhi Hospital Jaipur,Rajasthan. *Corresponding Author

Dr. Munish Kumar Kakkar Professor & Head Department of Pediatrics Mahatma Gandhi Hospital Jaipur,Rajasthan.

ABSTRACT

A hospital based cross sectional study was carried out at a mahatma Gandhi hospital tertiary care hospital to know the clinical profile of pediatric patients with tuberculosis. After obtaining consent, a thorough clinical examination was done followed by investigations to confirm the diagnosis. Totally data was collected from 140 patients and data was compiled and analyzed. It was observed that 140 patients were identified as suffering from tuberculosis in which 51.4% were pulmonary cases and rest 48.6% were extra-pulmonary cases. This study also showed that Extra-Pulmonary tuberculosis presented most commonly as Tubercular lymphadenitis (29.4%), followed by tuberculosis of central nervous system (26.5%), pleural effusion (17.6%) and abdominal tuberculosis (16.2%). Fever and cough was present almost universally (100% and 98.8%) in patients with pulmonary TB.

INTRODUCTION:

Tuberculosis (TB) is a major public health problem worldwide. It is listed in the top ten causes of death and leading cause due to single infectious agent among all age groups worldwide.As per WHO there is an estimate of about 10.0 million people (range, 9.0–11.1 million) developing TB disease in 2017. Children between 1-14 years age-group accounted for 10 % of these total cases i.e. 1 million. In 2017, estimated 1.3 million deaths (range, 1.2–1.4 million) among HIV-negative people and 300 000 deaths (range, 266 000–335 000) among HIV-positive people occurred due to TB.[1] About 234,000 additional deaths occurred among children under 15 years of age due to TB (40,000 occurring in HIV-infected children).[1]

Tuberculosis control activities are being implemented in India for more than 50 years. But still TB continues to be severest health crisis in India. India is the highest tuberculosis (TB) burdened country globally, and about 2,740,000 new cases were reported from India in 2017.1In 2017 India re-estimated its national figures of the burden of Tuberculosis; incorporating information from a wider range of sources and thus were more accurate than previous estimates.In2018, the incidence of TB was estimated to be around 211 per Lac population, and Mortality due to TB (Excluding HIV) was around 32/Lac population.

Although tuberculosis is the number one infectious cause of death worldwide but among children it remains underappreciated as a cause of morbidity and death. As per the national TB report2018, about 224,000 cases occurred among children of 0-14 years of age group.[1]Paediatric tuberculosis is considered as a public health measure of recent transmission of Mycobacterium tuberculosis.

Although tuberculosis is curable, diagnostic methods for tuberculosis are imperfect and perform poorly in children due to paucibacillary nature of the disease, intrinsic limitations of available tests, and overlap of respiratory clinical presentation in Human Immune Deficiency Virus (HIV) infection with TB and also obtaining sufficient sputum samples in children is difficult.

By keeping all the above facts in mind this study aimed to identify the potential types of tuberculosis presentation and its immediate outcome in tertiary care centre Jaipur.

AIMS AND OBJECTIVES:

To study the clinical profile of pediatric tuberculosis

MATERIAL AND METHODS:

This study titled "A study on clinical profile of childhood tuberculosis at Mahatma Gandhi Hospital, Jaipur" was conducted in the Department of Paediatrics, Mahatma Gandhi Medical College & Hospital, Jaipur. This is a tertiary care health facility that specializes in undergraduate and Post Graduate Medical teaching in all the departments. It is also a referral centre for various health related problems from different parts of western and northern India.

Study Design: It was a hospital based cross sectional study
Study Period: The study was conducted over the period of 1 years and data was collected from January 2017 till December 2017.

STUDY POPULATIONS:

The study was conducted amongst the children who were between 0-18 years and visited the study centre either outpatients or inpatients basis for seeking treatment of their ailments. .

INCLUSION CRITERIA:

The following patients were included in this study -

- Children with persistent fever and cough for more than 2 weeks
- Loss of weight that included history of unexplained weight loss or no weight gain in past 3 months. Operational definition of loss of weight was set as loss of more than 5% body weight as compared to highest weight recorded in past 3 months)
- History of contact with infectious Tuberculosis cases
- Any other extrapulmonary tuberculosis cases diagnosed in 0-18 yr age group.

EXCLUSION CRITERIA:

The patients who were excluded from the study included those

- Patients for whom the parents / guardian didn't give informed consent
- Child who had proven comorbidity like celiac disease or chronic liver disease
- Those who were already taking treatment more than 2 months.

SAMPLING TECHNIQUE

A total of 140 children and adolescent fulfilling above inclusion criteria were randomly enrolled in this study.

STUDY TOOL :

A predesigned and pretested questionnaire was used to evaluate the study objectives by the principal investigator. The tool intended to collect information on chief complaints and sociodemographic detail of the patients like age, sex gender, family history, drug history, birth history and socioeconomic status.

METHODOLOGY:

HISTORY:·

Patient's name, age, sex, address, occupation, and hospital

registration number were noted. A detailed history regarding presenting complaints, history of present illness, past history, family history, and personal history were obtained from the patient. Socio-economic status was calculated as per the updated Kuppuswamy's Scale, 2018.

- Patient's complaints of were particularly noted.
- History of any previous surgery and its nature if possible was asked for and recorded.

RESULTS:

A total of 160 children with suspected TB were screened and finally 140 were enrolled in the study. The twenty children who were excluded were those who were on TB treatment for >2 months (n=3); those who expressed their inability to follow up (n=7) and other 10 who did not give us the informed consent for unspecified reasons.

Table 1: Diagnosis Of The Study Participants

Type of Tuberculosis	Frequency	Percentage
Pulmonary	72	51.4
Extra-pulmonary	68	48.6
Total	140	100

Above table shows that 140 patients were identified as suffering from tuberculosis in which 51.4% were pulmonary cases and rest 48.6% were extra-pulmonary cases.

Table 2: Type Of Extra-pulmonary Focus Observed In The Study Participants

Site of focus	Frequency	Percentage
TB Lymphadenitis	20	29.4%
CNS TB	18	26.5%
Pleural effusion	12	17.6%
Abdominal TB	11	16.2%
Spinal TB	3	4.4%
TB Thyroid	2	2.9%
Parotid Gland	1	1.4%
TB Hip	1	1.4%

Above table shows the focus of extra-pulmonary tuberculosis. Tubercular lymphadenitis was most common (29.4%), followed by tuberculosis of central nervous system (26.5%), pleural effusion (17.6%) and abdominal tuberculosis (16.2%). Spinal and thyroid tubercular lesions comprised of 4.4 % and 2.9% respectively

Table 3: Presenting Complaints Of Patients

	Status	Pulmonary	Extra-pulmonary	Total	p-value
Fever	**Yes**	72 (100%)	53 (77.9%)	125 (89.3%)	0.001
	No	0	15 (22.1%)	15 (10.7%)	
Cough	**Yes**	71 (98.6%)	16 (23.5%)	87 (62.2%)	0.001
	No	1 (1.4%)	52 (76.5%)	53 (37.8%)	
Breathlessness	**Yes**	15 (20.8%)	0	15 (10.7%)	0.004
	No	57 (79.2%)	68 (100%)	125 (89.3%)	
Vomiting	**Yes**	2 (2.8%)	16 (23.5%)	18 (12.8%)	0.001
	No	70 (97.2%)	52 (76.5%)	122 (87.2%)	
Headache	**Yes**	0	14 (20.6%)	14 (10%)	0.001
	No	72 (100%)	54 (79.4%)	126 (90%	
Convulsions	**Yes**	0	11 (16.2%)	11 (7.8%)	0.001
	No	72 (100%)	57 (83.8%)	129 (92.2%)	
Deranged sensorium	**Yes**	0	7 (10.3%)	7 (5%)	0.005
	No	72 (100%)	61 (89.7%)	133 (95%)	
Altered behaviour	**Yes**	0	0	0	1.00
	No	72 (100%)	68 (100%)	140 (100%)	
Weight loss	**Yes**	66 (91.7%)	51 (75%)	117 (83.5%)	0.001
	No	6 (8.3%)	17 (25%)	23 (16.5%)	
Appetite loss	**Yes**	53 (73.6%)	29 (42.6%)	82 (58.5%)	0.011
	No	19 (26.4%)	39 (57.4%)	58 (41.5%)	
Abdomen distension	**Yes**	1 (1.4%)	11 (16.2%)	12 (8.5%)	0.002
	No	71 (98.6%)	57 (83.8%)	128 (91.5%)	

Fever, cough and breathlessness was present in 100%, 98.8% and 18.1% of patients with pulmonary TB whereas in extra pulmonary TB patients these complaints were present in 73.6%, 8.7% and none of patients respectively. These findings were significantly associated (p=0.001). Vomiting (28.1%), headache (24.6%), convulsions (19.3%), deranged sensorium(12.3%) and abdominal distension (19.3%) was significantly associated with extra pulmonary TB as compared to pulmonary TB [Vomiting (2.4%), headache (0%), convulsions (0%),deranged sensorium (0%) and abdominal distension (1.2%)]. Weight loss and appetite loss was significantly associated with pulmonary TB patients (p=0.001).

DISCUSSION:

In this study we investigated three important questions relevant to current status of research on paediatric tuberculosis in India. Firstly, we assessed the clinical profile of patients of pulmonary as well as extra pulmonary forms of paediatric tuberculosis to study in detail the age groups and common sign and symptoms.

Extra-pulmonary tuberculosis presented itself as Tubercular lymphadenitis (29.4%), followed closely by tuberculosis of central nervous system (26.5%) and pleural effusion (17.6%) abdominal tuberculosis (16.2%). Spinal and thyroid tubercular lesions comprised of 4.4 % and 2.9% respectively. This pattern of distribution of EPTB was found to be similar to as reported by other studies.[60] In study by Gosai et al, TBME (46%), was followed by disseminated tuberculosis (21%), pleural effusion (12%), abdominal tuberculosis (10%) with TB lymphadenitis constituting mere 7% of the cases.[42]In another study of V. Sheth, et al., distribution of EPTB was TBME (4%), TB lymphadenitis (78%), osteo-articular (4%), disseminated TB (8%) & others (6%).

Fever was found to be present in 94.4 % of CNS tuberculosis patients, a common form of extra pulmonary tuberculosis was fever. Fever was followed by other common complaints of vomiting (77.7%), headache (66.6%), convulsions (61.1%) and weight loss in 33.3% of patients. Deranged sensorium was present in only 27.7 % of patients. Findings are similar to other reports from India as well as developed countries. Van Well GT et al., in a retrospective cohort study of all of the children diagnosed with tuberculous meningitis in a large university hospital in South Africa compared demographic, clinical, and diagnostic characteristics with clinical outcome after 6 months of treatment. They reported poor weight gain or weight loss (91%), loss of consciousness (96%), motor deficit (63%), meningeal irritation (98%), raised intracranial pressure (23%), brainstem dysfunction (39%), and cranial nerve palsies(27%) as common presenting characteristics.In this study in South Africa, ethnicity, stage of

disease, headache, convulsions, motor function, brainstem dysfunction, and cerebral infarctions were found to be independently associate with poor outcome.

CONCLUSION:

- A total 140 patients were identified as suffering from tuberculosis out of which about 51.4% were pulmonary cases and others (48.6%) were extra-pulmonary cases.
- Extra-Pulmonary tuberculosis presented most commonly as Tubercular lymphadenitis (29.4%), followed by tuberculosis of central nervous system (26.5%), pleural effusion (17.6%) and abdominal tuberculosis (16.2%). Another 4% and 2.9% patients suffered from spinal and thyroid tubercular lesions.
- Fever and cough was present almost universally (100% and 98.8%)in patients with pulmonary TB. However, in patients with extra pulmonary TB, fever and cough were present only in 73.6% and 8.7% patients.This fact highlights the role of diagnostic work-up in every case of Pyrexia of Unknown Origin for Tuberculosis.
- Vomiting (28.1%), headache (24.6%), convulsions (19.3%), deranged sensorium (12.3%) and abdominal distension (19.3%) was associated significantly with extra pulmonary TB as compared to pulmonary TB. Weight loss and appetite loss was significantly associated with pulmonary TB patients (p=0.001).

The present prospective study has elaborated the diverse clinical, haematological, histopathological picture of pulmonary as well as extra pulmonary form of tuberculosis in children.

Fever should not be ignored in any paediatric patient and every patient of PUO should undergo an compulsory work up for paediatric tuberculosis.

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