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A Study on Clinical Profile of Childhood Tuberculosis at a Tertiary Care Hospital.

K Nagaraj¹, and Ramesh K^{2*}.

¹Department of Pediatrics, VIMS, Bellary, Karnataka, India.

²Department of Community Medicine, VIMS, Bellary, Karnataka, India.

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*For Correspondence

Department of Community
Medicine, VIMS, Bellary,
Karnataka, India.

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ABSTRACT

A Descriptive study was carried out at a 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 50 patients and data was compiled and analyzed. It was observed that Majority of cases were around 6 years of age (64%) least belonged to < 1 years of age with 6% incidence. Incidence in boys is more than girls. It can be observed that commonest type was pulmonary TB accounting 62% of cases.

INTRODUCTION

Tuberculosis infection and disease among children are much more prevalent in developing countries, where resources for control are scarce ^[1]. It is estimated that in developing countries the annual risk of tuberculosis infection in children is 2- 5 per cent. The estimated lifetime risk of developing tuberculosis disease for a young child infected with Mycobacterium tuberculosis as indicated by positive tuberculin test is about 10 per cent ^[2]. About 5 per cent of those infected are likely to develop disease in the first year after infection and the remaining 5 per cent during their lifetime. These rates increase about six-fold in HIV infected individuals.

Nearly 8-20 per cent of the deaths caused by TB occur in children ^[3]. The age of the child at acquisition of TB infection has a great effect on the occurrence of tuberculosis disease. Approximately 40 per cent of infected children less than 1 yr of age if left untreated develop radiologically significant lymphadenopathy or segmental lesions compared with 24 per cent of children between 1-15 years ^[4].

Widespread coverage with BCG vaccine has possibly led to modification in the pattern of clinical manifestations. It has been suggested that BCG vaccination is responsible for decrease in the occurrence of disseminated and severe disease. Localized forms of illness, e.g., intrathoracic lymphadenopathy, and localized CNS disease have been reported to occur with greater frequency ^[5] but these need confirmation from large epidemiological studies. A recent study from Spain ^[6] reported an increase in number of children with single hilar adenopathy (32% for the period 1978-1987 to 43.4% for the period 1988-1997) in comparison with those with parenchymal involvement or a mixed pattern (62% vs 45%). The authors also reported a non-significant trend towards a lower rate of tubercular meningitis in the last decade ^[7].

Indian experience from a tertiary care referral centre in north India suggests an increase in the proportion of cases of extra-pulmonary TB over the last 3 decades. The increase was predominantly due to increase in lymph node TB. The severe form of tubercular meningitis decreased over the last three decades

METHODOLOGY

This study was conducted in the pediatric department of the Head Quarters Hospital and V.I.M.S. Hospital, Bellary, during the period of December- 2006 to May-2008. This study comprises of 50 children with tuberculosis, only newly diagnosed and untreated cases were included in this study to avoid confusion and misinterpretation with regard to culture and isolation of tubercle bacilli from gastric lavage.

To avoid doubts regarding diagnosis "Kenneth Jones criteria for diagnosing childhood tuberculosis" were applied in all cases. Cases were taken up for the present study only if they scored sufficient points to come under the "Tuberculosis probable" or the "Tuberculosis unquestionable" group.

An informed written consent was obtained from parents/guardians of children and those patients who were seriously ill and not giving consent for the study were excluded. Data was entered in Microsoft excel and was analyzed using descriptive statistics in SPSS.

RESULTS

Table 1: Age and Sex distribution

Age in years	Male	Female	Total	Percentage
< 1	1	2	3	6
1 - 3	11	3	14	28
4 - 6	2	3	5	10
7 - 9	8	5	13	26
> 9	9	6	15	30
Total	31	19	50	100
Percentage	62	38	100	

Majority of cases were around 6 years of age (64%) least belonged to < 1 years of age with 6% incidence. Incidence in boys is more than girls.

Table 2: Symptoms

Presenting symptoms	Pulm TB (31)	CNS cases (12)	Others (7)	Total (50)	Percentage
Fever	31	12	7	50	100
Cough	31	2	4	37	74
Loss of weight	16	6	2	24	48
Loss of appetite	18	6	2	26	52
Vomiting	4	9	2	15	30
Altered sensorium	-	10	4	14	28
Convulsions	-	9	3	12	24
Diarrhea	1	-	1	2	4
Abd. distension	-	-	1	1	2
Swelling neck/axilla	4	1	2	7	14
Bony swelling/ deformity	-	-	1	1	2
Headache	2	8	2	12	24
Weakness of limbs	-	3	1	4	8

Fever is the commonest symptom among the presenting symptoms. It was present in 100% of cases. The other common presenting symptoms observed were cough (74%), loss of appetite (52%) and loss of weight (48%).

In CNS cases apart from fever the other common presenting symptoms were vomiting, headache, altered sensorium, convulsions.

Table 3: Other Important Clinical Signs Noticed In General Examination In The Order Of Frequency Were

Clinical features	No.	Percentage
Pallor	28	56
Vit A deficiency	12	24
Phlycten	6	12
Dyspnea	12	24
Enlargement of liver	10	20
Lymphadenopathy	7	14
B complex deficiency	6	12
Clubbing	2	4

Inference: Other important clinical signs, noticed in GPE were Pallor (56%) Vitamin A deficiency(24%), Dyspnea (24%).

Phlycten was noticed in 2 cases of pleural effusion, 1 case of tuberular lymphadenopathy, 3 cases of PPC. In this case isolation of Tubercle bacillus was negative, indicating that phlycten is a hypersensitive reaction.

Table 4: Types Of Tuberculosis

Types	No.	Percentage
1) Pulmonary	31	62
2) C.N.S	12	24
3) Abdominal	1	2
4) Disseminated	3	6
5) Lymph node	1	2
6) Bone and joint	1	2
7) Miliary	1	2
Total	50	100

It can be observed that commonest type was pulmonary TB accounting 62% of cases.

DISCUSSION

In the present study majority of cases ie.64% were around the age group of 6 years (1-9). So, this age group constituted the vulnerable period for tuberculosis.

- Ramachandran ^[8] observed that 76.8% of the cases were in the age group of 0-5 years.
- Poulsen and Anderson ^[9] reported that 83.5% of the cases were below the age of 6 years.
- Benakappa et al ^[10] observed that 66% were in the age group of 0-6 years.
- Raj narain ^[11] et al¹⁰ reported 38.9% were in <4 year age group and Chakraborty AK et al ¹²11 reported 54.3% cases in 0-4 years and 45.6% in 5-9 years.

This higher prevalence of tuberculosis below the age of 5 years could be due to:

- Low resistance of host,
- Increased incidence of severe malnutrition in the form of kwashiorkor and marasmus,
- Poverty, ignorance and lack of parental care,
- Most important of all being greater frequency of droplet infection for which they are more prone as they are cuddled and are exposed to adults more frequently in joint or extended families, where they may live in a very congested and ill-ventilated atmosphere.

In the present study the youngest was 10 months old and the oldest was 13 years old.

There is a slight preponderance of males over females. The percentage of male being 62, female 38, Ramachandran ^[8] reported 54 % males 40.5% of females in his study of 1284 cases. In Benakappa et al¹⁰ study observed the percentage of male being 52, female 48.

The presenting symptoms/recorded in the order of frequency were fever in 50 (100%) of cases, cough in 37 (74%) cases, loss of appetite in 26 (52%) cases and loss of weight 24 (48%), vomiting in 15(30%) cases, altered sensorium in 14 (28%), head ache in 12 (24%) cases, head ache in 12 (24%) cases, , convulsions in 12 (24%) cases, swelling of the neck in 7 (14%) cases ,weakness of limbs in 4(8%)cases, abdominal pain and abdominal distension in 4(8%), diarrhea in 2(4%) of cases and bony deformity in 1(2%) of cases.

Fever constituted an important presenting symptom and was present in all cases. As expected, loss of weight and loss of appetite were noticed in quite a good number of cases 24&26 respectively. Benakappa et al ^[10] observed similar presenting symptoms in their study.

Pallor was noticed in 28 (56%), vitamin "A" deficiency in 12 (24%), hepatomegaly in 10(20%), dyspnoea in 12(24%), lymphadenopathy in 7(14%), Phlycten in 6(12%), B complex deficiency in 6(12%), clubbing in 2(4%) of cases.

Pallor indicates high incidence of anemia in tuberculosis. This may be secondary to severe malnutrition which is usually associated with a good number of cases of tuberculosis or it may be due to bone marrow suppression as a result of bacillaemia or its toxic effects on the bone marrow.

Respiratory signs were noticed mainly in cases of pleural effusion, miliary, disseminated and some cases of progressive pulmonary lesions. In some of the cases the respiratory signs were secondary to super added infection.

Xerophthalmia, signs of B complex deficiency mentioned above were noticed in some of the cases of grade III and IV malnutrition.

Hepatomegaly observed in 10(20%) of cases were due to abdominal, disseminated and miliary tuberculosis. Other causes were associated malnutrition with fatty changes downward displacement due to effusion.

Phlycten was noticed in 6 (12%) of cases, in 2 cases pleural effusion, 1 in tubercular lymphadenopathy case & 3 cases of PPC. This indicates Phlycten is a hypersensitive reaction to tubercular protein. Isolation of tubercle bacilli in these cases was negative.

Lymphadenopathy was noticed in 7(14%) cases. 4 cases were tubercular etiology. Matting of gland was noticed in 1 case. In 3 cases these glands were discrete and firm in consistency and later the diagnosis was proved by biopsy in both cases. In the remaining 3 cases these lymph glands were discrete and reduced in size quickly after a course of antibiotic therapy and are thought to be due to infection other than tuberculosis.

CONCLUSION

Tuberculosis in children is an important cause of morbidity and mortality. The clinical symptoms and signs are non specific and lab diagnosis is limited because of paucibacillary nature of illness.

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