IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 18, Issue 5 Ser. 14 (May. 2019), PP 34-39
www.iosrjournals.org

"Clinical Profile of Tuberculosis: A Study in a Tertiary Care Paediatric Hospital, Dhaka, Bangladesh"

Md. Kamruzzaman[1], Md. Mosharaf Hossain[2], Md. Atiqul Islam[3], Probir Kumar Sarkar[4], Sarabon Tahura[5]

[1]*Assistant Professor (Respiratory Medicine), Dhaka Shishu Hospital, Bangladesh*
[2]*Assistant Professor (Pediatric), Dhaka Shishu Hospital, Bangladesh*
[3]*Assistant Professor (Pediatric), Dhaka Shishu Hospital, Bangladesh*
[4]*Associate Professor (Pediatric), Dhaka Shishu Hospital, Bangladesh*
[5]*Assantant Professor (Pediatric), Dhaka Shishu Hospital, Bangladesh*
Corresponding Author: Md. Kamruzzaman

Abstract: *Tuberculosis (TB) remains a major public health problem, despite noteworthy socio-economic development and advances in medical science. It is a curable disease but still millions of people suffer every year and a number of them die from this infectious disease, resulting in huge social and economic loss. TB treatment requires several months of swallowing a combination of 3 to 4 drugs every day. Patients often forget to take their medicines or stop taking them when they start to feel better. This cross-sectional study was carried out in the Department of Pediatrics at Dhaka Shishu Hospital, Dhaka, Bangladesh during January 2018 to December 2018. We selected 400 presumptive patients with tuberculosis. Among them 61 (15.25%) were positive. Males are dominating sex distribution (55.73%, n=34) in study population as compared to females (44.27%, n=27). Most of the patients were belonging to age group of <6 years (36.06%, n=22) and >10 years (27.86%, n=17). Among 6 to 10 years, (30.06%, n=22)patients were included in the study. Most common form of TB was Pulmonary TB (40.98%, n=25) followed by CNS TB (21.31%, n=13). Non-specific symptoms like fever (54.09%, n=33) was the commonest presenting symptoms. Other symptoms included cough (39.34%, n=24), altered sensorium (14.75%, n=9), vomiting (19.67%, n=12), abdominal Pain (22.95%, n=14), swelling (21.31%, n=13). Among the participants MT (TST) positive were 48(78.68%), X-RAY 30(49.18), AFB examination 13(21.31%) and BCG Vaccination 37(60.65%). Diagnosis of paediatric tuberculosis become challenging in Bangladesh. In this study TB was more common in extra- pulmonary than pulmonary forms in our setting. Diagnosis were based on a combination of epidemiological and clinical suspicion supported by results of various investigations. Presence of paediatric TB is an indication of prevalence of TB in the community.*

Key words: *Clinical Profile, Tuberculosis, Outcome, infectious diseases, Paediatric*

Date of Submission: 10-05-2019 Date of acceptance: 27-05-2019

I. Introduction

Tuberculosis remains a major public health problem, despite noteworthy socio-economic development and advances in medical science. Although it is a curable disease but still millions of people suffer every year and a number of them die from this infectious disease, resulting in devastating social and economic impact. Mycobacterium tuberculosis, the bacteria that causes tuberculosis, has been around for centuries. Fragments of the spinal columns from Egyptian mummies from 2400 B.C.E. were found to have definite signs of the ravages of this terrible disease [1].The actual burden of paediatric TB is not known due to diagnostic difficulties but has been assumed that 10% of total TB load is found in children. Globally, about 1 million cases of paediatric TB are estimated to occur every year accounting for 10-15% of all TB; with more than 100,000 estimated deaths every year. It is one of the top 10 causes of childhood mortality. Though Multi Drug Resistance-Tuberculosis (MDR-TB) and Extensive Drug Resistance-Tuberculosis (XDR-TB) is documented among paediatric age group, there are no estimates of overall burden, chiefly because of diagnostic difficulties and exclusion of children in most of the drug resistance surveys [2].The proportion of pediatric TB cases registered under RNTCP has been constant in the past five years and for 2013, 63919 new TB cases were notified accounting for 5% of all cases. This is in the range of the expected incidence by WHO report. However considering difficulties in diagnosis of pediatric TB under field condition, the notification rates can be further strengthened [3].However, the proportion of paediatric TB case detection has variation among the states of India, which significantly varies from 5-14% in larger states and in Gujarat it is about 6-8% [2].Despite this huge disease burden, studies of paediatric TB are

scantily available both in global and national contexts.However, research on childhood tuberculosis as it relates to better diagnostics is often neglected because of technical difficulties, such as the slow growth in culture, the difficulty of obtaining specimens, and the diverse and relatively nonspecific clinical presentation of tuberculosis in this age group. Researchers often use individually designed criteria for enrollment, diagnostic classifications, and reference standards, thereby hindering the interpretation and comparability of their findings.Reliable data on the clinical profile of all forms of TB amongst children in India are not available. Most surveys conducted have focused on pulmonary TB and no significant studies on extra pulmonary TB esp. on childhood tuberculosis are available.By keeping all the above facts in mind this study aimed to identify the potential types of tuberculosis presentation and clinical profile of Childhood Tuberculosis in a tertiary care paediatric hospital in Dhaka of Bangladesh.

II. Objectives

General objective:

- To assess the Clinical Profile of Tuberculosis in Bangladesh

Specific objectives:

- To analyze the Mantoux test positivity in suspected cases of tuberculosis.
- To find the association of presence of BCG scars in diagnosed tuberculosis patients.

III. Methods and Materials

The study was carried out in the Department of Pediatrics at Dhaka Shishu Hospital, Dhaka, Bangladesh during January 2018 to December 2018. We selected 400 presumptive patients with tuberculosis. Among them 61 (15.25%) were positive. They were informed about the purpose and nature of study, risks and benefits associated with participation in the study.All consecutive children attending the out-patient department of the Hospital with clinical symptoms and signs suggestive of tuberculosis or failure to thrive were investigated for TB disease. After obtaining written informed consent, demographic data, a detailed clinical history, family history of contact with TB disease, and physical examination for each child was recorded in a standardized format.Complete blood count, Mantoux test, and chest X-ray were done for all the cases. Interpretation of Mantoux test (1TU) and complete blood count were done using the standardized methods. Fine needle aspiration cytology (FNAC), ultrasound abdomen, abdominal paracentesis, x-ray chest and spine, lumbar puncture, computed tomography (CT) (of relevant systems), MRI and other relevant investigations were done as and when required with consultation with senior paediatrician for the diagnosis of tuberculosis. Sputum examination was done on all the suspected patients in case considering age. In the cases where sputum collection was not feasible then gastric lavage was performed for acid fast bacilli staining (AFB).Patient attending in the selected hospital on OPD basis and/or got admitted were evaluated and enrolled for the study but only 20(32.78%) patient were came for follow up for regular 6 months. All diagnosed patient of TB were put on Anti tuberculosis treatment. Tuberculosis patients of aged up to 18 year, satisfying the inclusion and exclusion criteria were included in the study.

IV. Results and Observation

The study was carried out in the Department of Pediatrics at Dhaka shiishu Hospital, Dhaka, Bangladesh during January 2018 to December 2018. We selected 400 presumptive patients with tuberculosis. Among them 61 (15.25%) were tuberculosis positive. There was preponderance of males (55.73%, n=34) in study population as compared to females (44.27%, n=27).Most of the patients were belonging to age group of <6 years (36.06%, n=22) and >10 years (27.86%, n=17). Among 6 to 10 years, (30.06%, n=22)patients were included in the study(Figure I). Most common form of TB was Pulmonary TB (40.19%, n=25) followed by CNS TB (21.31%, n=13), Abdominal TB (14.75%, n=9), TB Lymphadenitis (11.47%, n=7) Skin TB (4.91%, n=3), Disseminated Koch`s (1.63%, n=1), Miliary TB (1.63%, n=1) and Psoas Abscess of Tubercular Origin-PATO (3.27%, n=2). Non-specific symptoms like fever (54.09%, n=33) was the commonest presenting symptoms. Other symptoms included cough (38%, n=24), altered sensorium (14.75%, n=9), vomiting (19.67%, n=12), abdominal Pain (13%, n=8), swelling (21.31%, n=13). Among the participants MT (TST) positive were 48(78.68%), X-RAY 30(49.18), AFB examination 13(21.31%) and BCG Vaccination 36(59%). The male predominance in the study may be due to their ambulatory nature which make them more expose to the TB infected cases or could be because of more attention given to male child in developing country like India which may lead to early diagnosis.

Figure I: Distribution of children according to sex (n=61)

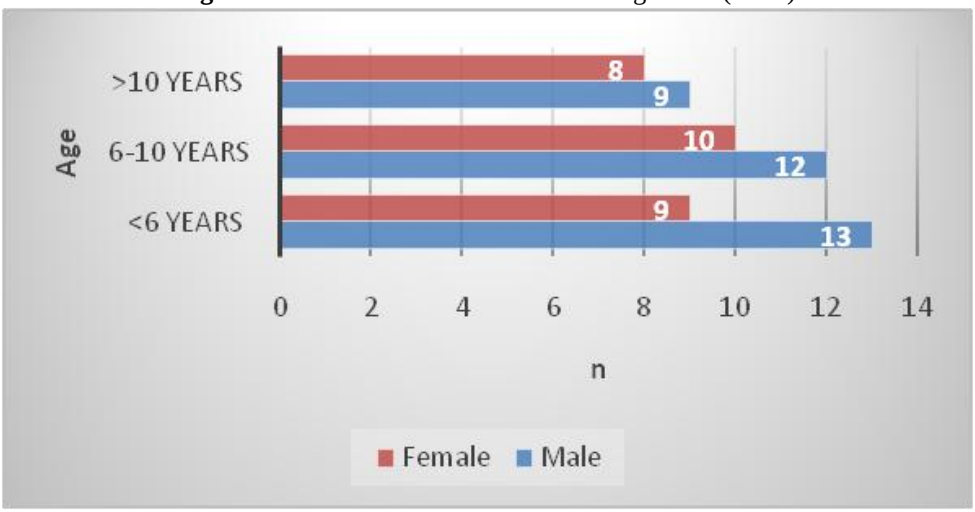
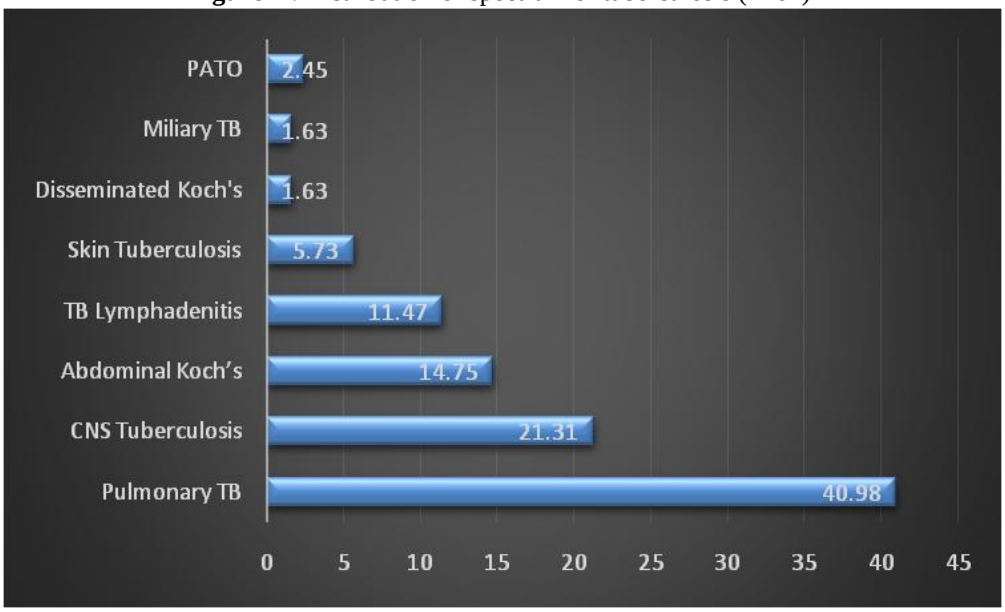


Figure II: Distribution of spectrum of tuberculosis (n=61)



PATO: Psoas Abscess of Tubercular Origin

Table I: Spectrum of type of tuberculosis and age wise distribution (n=61)

Final Diagnosis	Age group						Total
	<6 yrs	%	6-10 yrs	%	>10 yrs	%	
Pulmonary Koch's	10	40	6	24	9	36	25
CNS Tuberculosis	4	31	5	38	4	31	13
Abdominal Koch's	1	11	4	44	4	44	9
TB Lymphadenitis	3	43	2	29	2	29	7
Skin Tuberculosis	2	67	0	0	1	33	3
Disseminated Koch's	1	100	0	0	0	0	1
Miliary TB	0	0	1	100	0	0	1
PATO	0	0	2	100	0	0	2
Total	21		20		20		61

PATO: Psoas Abscess of Tubercular Origin

Table II: Presenting symptoms of the children diagnosed with tuberculosis (n=61)

Final Diagnosis	Fever	Cough	Altered sensorium	Swelling	Vomiting	Convulsion	Abdominal pain	Cold	Breathlessness	Lesions	Total
Pulmonary Koch's	17(68%)	22(88%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	6(24%)	4(16%)	0(0%)	25
CNS Tuberculosis	7(54%)	0(0%)	9(69%)	0(0%)	3(23%)	7(54%)	3(23%)	0(0%)	0(0%)	0(0%)	13
Abdominal Koch's	4(44%)	0(0%)	0(0%)	3(33%)	9(100%)	0(0%)	5(55%)	0(0%)	0(0%)	0(0%)	9
TB Lymphadenitis	0(0%)	0(0%)	0(0%)	7(100)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	7
Skin Tuberculosis	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	3(100%)	3
Disseminated Koch's	1(100%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	1
Miliary TB	1(100%)	1(100%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	1(100%)	0(0%)	0(0%)	1
PATO	2(100%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	2
Total	33(54%)	23(38%)	9(15%)	10(16%)	12(20%)	7(11.5%)	8(13%)	7(11.5%)	4(6.6%)	3(5%)	61

PATO: Psoas Abscess of Tubercular Origin

Table III: Distribution of TB positive by MT(TST), X-RAY, AFB exam. & BCG vaccination cases (n=61)

Final Diagnosis	MT (TST)	X-RAY N(%)	AFB exam.	BCG Vaccination	Total
Pulmonary Koch's	21(84%)	25(100%)	0(0%)	20(80%)	25
CNS Tuberculosis	9(69%)	2(15%)	12(92%)	4(31%)	13
Abdominal Koch's	4(44%)	0(0%)	0(0%)	4(44%)	9
TB Lymphadenitis	7(100%)	0(0%)	0(0%)	6(86%)	7
Skin Tuberculosis	3(100%)	3(100%)	0(0%)	1(33%)	3
Disseminated Koch's	1(100%)	0(0%)	0(0%)	0(0%)	1
Miliary TB	1(100%)	0(0%)	0(0%)	0(0%)	1
PATO	2(100%)	0(0%)	1(50%)	2(100%)	2
Total	48(79%)	30(49%)	13(21%)	36(59%)	61

V. Discussion

The study was carried out in the Department of Pediatrics at Dhaka Shishu Hospital, Dhaka, Bangladesh during January 2018 to December 2018. We selected 400 presumptive patients with tuberculosis. They were informed about the purpose and nature of the study, risk and benefits associated with participation of the study. All consecutive children attending the out-patient department of the hospital with clinical symptoms and signs suggestive of tuberculosis or failure to thrive were investigated for TB disease. After obtaining written informed consent, demographic data, a detail clinical history, family history of contact TB disease, a physical examination for each child were recorded in standardized format. MRI and other relevant investigations were done properly and when required with consultation with senior paediatrician for the diagnosis of tuberculosis. Sputum examination was done on all the suspected patients in case considering age. In the cases where sputum collection was not feasible there gastric lavage was performed for acid fast bacilli staining (AFB). Patient attending in the selected hospital on OPD basis and/or got admitted were evaluated and enrolled for the study. Al diagnosed patients of TB were put on Anti-tuberculosis treatment. We selected 400 presumptive patients with tuberculosis. Among them 61 (15.25%) were tuberculosis positive. There was preponderance of males (55.73%, n=34) in study population as compared to females (44.27%, n=27). Most of the patients were belonging to age group of <6 years (36.06%, n=22) and >10 years (27.86%, n=17). Among 6 to 10 years, (30.06%, n=22)patients were included in the study (Figure I). Most common form of TB was Pulmonary TB (40.19%, n=25) followed by CNS TB (21.31%, n=13), Abdominal TB (14.75%, n=9), TB Lymphadenitis (11.47%, n=7) Skin TB (4.91%, n=3), Disseminated Koch`s (1.63%, n=1), Miliary TB (1.63%, n=1) and Psoas Abscess of Tubercular Origin-PATO (3.27%, n=2). Non-specific symptoms like fever (54.09%, n=33) was the commonest presenting symptoms. Other symptoms included cough (38%, n=24), altered sensorium (14.75%, n=9), vomiting (19.67%, n=12), abdominal Pain (13%, n=8), swelling (21.31%, n=13). Among the participants MT (TST) positive were 48(78.68%), X-RAY 30(49.18), AFB examination 13(21.31%) and BCG Vaccination 36(59%). Shrestha S, et al, also had maximum patients in age group of 10-15 year`s (63.4%) followed by age group of <5 years (29.3%) [4]. The age of the child at acquisition of TB infection has a great effect on the

occurrence of tuberculosis disease. Approximately 40% of infected children less than one year of age if left untreated developed radiological lymphadenopathy or segmental lesions compared with 24% of children between 1-10 years and 16% of children between 11-15 years of age [5]. Our study supports this concept as we got more patients of younger and adolescent age. Provably young child has less developed immunity and more prone infection, similarly post pubertal or adolescent were more because of more exposure to infection. While calculating the spectrum of tuberculosis, Pulmonary Koch`s was observed to be the most commonform of tuberculosis as per organ-wise involvement however, on board classification extra-pulmonary TB (59%, n=36) was more common than pulmonary TB (44%, n=25).One patient (1.61%) was diagnosed as disseminated TB. One child (1.61%) had miliary TB. Out of all the cases of pulmonary TB 42.9% (n=9) were >10 years, 48% (n=10) were <6 years and 30% (n=6) between 6-10 years. Among extra-pulmonary TB 52% (n=11) were <6 years, 57.1% (n=11) were >10 years and same were between 6-10 years.Thus, extra-pulmonary TB had equal distribution among different age group as compared to pulmonary TB which was more common in older age group. A study from Bhutan had 51% patients with extra-pulmonary TB and 49% patients with pulmonary TB and TB lymphadenitis (54%) was most common form of extra-pulmonary TB [8]. A study conducted in Delhi, extra-pulmonary TB was diagnosed in 63.3% and pulmonary TB in 36.7% [9]. Distribution of extra-pulmonary TB according to organ involved in Hatwal D, et al. was TB lymphadenitis (41.3%), TBME (22.4%), pleural effusion (13.7%), musculoskeletal (12%) and abdominal TB (5.2%) [10]. Findings of these studies match with our findings. Symptoms like fever 54.9%, Cough (38%, altered sensorium 15% were the commonest among others in all forms of tuberculosis. In pulmonary tuberculosis cough 88% and fever 68% were common complaints while altered sensorium 69% was the commonest clinical feature in case of CNS tuberculosis. Patients of TB lymphadenitis were presented with complaints of swelling (33%, n=3) and vomiting was the most common complaint among the patients of Abdominal tuberculosis 100%.Shrestha, et al. had nonspecific symptoms like fever (75.6%), cough (63.4%) and weight loss (41.5%) as most common presenting symptoms Study from north India had maximum numbers of children presenting with non-specific symptoms of anorexia (95%) followed by fever (84%), weight loss (63%) and cough (44%) [11]. Another study from Chennai, India had predominant symptoms as fever and cough (47%), loss of weight (41%) and a visible glandular swelling (49%) [12]. Also, in a study done at Philippines, most frequent symptoms were fever (86.6%), cough (76.1%), malnutrition (52.3%), weight loss (50.7%), anorexia (44.8%), and breathing difficulty (28.4%) [5]. This shows nonspecific symptoms are most common presenting features of TB in children, which makes early diagnosis difficult and which requests high degree of suspicion for proper work up. Muley P, Odedara T, Memon R, Sethi A, Gandhi D. Clinical Profile of Childhood Tuberculosis in a Tertiary Care Rural Hospital. IAIM, 2017; 4(6): 109-124.Conducted a randomized controlled trial to compare intermittent vs daily short course chemotherapy for childhood tuberculosis and concluded that overall efficacy of both regimens were almost similar and greater than 95% in patients with good compliance [13].

VI. Limitations of the study

This study was conducted in one tertiary hospital with a small sample size. So the study results might not reflect the scenarios of the whole country.

VII. Conclusion

In the study tuberculosis was more common in extra-pulmonary than pulmonary forms in our setting. Diagnosis was based on a combination of epidemiological and clinical suspicion supported by results of various investigations. Presence of paediatric tuberculosis is an indication of prevalence of TB in that community.

References

[1]. David Perlin, Ann Cohen. The Complete Idiot's Guide to Dangerous Diseases and Epidemics, 2002.
[2]. Childhood Tuberculosis, TB India 2013 RNTCP Annual Status Report, 7.4, 45-47.
[3]. TB India 2014, RNTCP, Annual Status Report, Central TB Division, Directorate
[4]. General of Health Services, http://www.tbcindia.nic.in/pdfs/TB%20INDIA%202014.pdf
[5]. Dendup T, Dorji T, Edginton ME, Kumar AVM, Wangchuk D, Dophu U, Jamtsho T, Rinzin C, et al. Childhood tuberculosis in Bhutan: profile and treatment outcomes. Public Health Action, 2013; 3(1): 11–14.
[6]. Pama CP, Gatchalian SR, et al. Clinical profile of culture proven tuberculosis cases among Filipino children aged 3 months to 18 years. PIDSP, 2002; 5(1): 13-23.
[7]. Shrestha S, Bichha RP, Sharma A, Upadhyay S, Rijal P, et al. Clinical profile of tuberculosis in children. Nepal Med Coll J., 2011; 13(2): 119-122.
[8]. Muley P, Odedara T, Memon R, Sethi A, Gandhi D. Clinical Profile of Childhood Tuberculosis in a Tertiary Care Rural Hospital. IAIM, 2017; 4(6): 109-124.
[9]. Kabra SK, Lodha R, Seth V. Some current concepts on childhood tuberculosis. Indian J Med Res., 2004; 120: 387-397.

[10]. Sreeramareddy CT, Ramakrishnareddy N, Shah RK, Baniya R, Swain PK, et al. Clinico-epidemiological profile and diagnostic procedures of pediatric tuberculosis in a tertiary care hospital of western Nepal-a case-series analysis. BMC Pediatrics, 2010; 10: 57.
[11]. Singh V, Parakh A. Revised National Tuberculosis Control Programme and Directly Observed Therapy Short-course
[12]. Singh V, Kaur S. Multi-drug Resistant Childhood Tuberculosis. Indian J Pediatr., 2011; 78(4): 456-463.

Md. Kamruzzaman. "Clinical Profile of Tuberculosis: A Study in a Tertiary Care Paediatric Hospital, Dhaka, Bangladesh". IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 18, no. 5, 2019, pp 34-39.