DOI: https://doi.org/10.3329/medtoday.v37i1.79327

Original Article OPEN ACCESS

The Pattern of Clinical Characteristics of Tubercular Meningitis (TBM) Patients in Pediatric Unit of Magura Medical College Hospital

Mohammad Abdul Hye*[1], Md. Shamsur Rahman[2], Md. Iqbal Hossain[3], Shuperna Ahmed[4]

Abstract

Introduction with Objectives: *In this study our main goal is to evaluate the clinical characteristics of tubercular meningitis (TBM) patients in pediatric unit of Magura Medical College Hospital.* ***Materials and Methods:*** *An experimental design was conducted in pediatric unit of Magura Medical College Hospital from January 2021 to June 2024. 26 cases of tubercular meningitis confirmed by CSF study or confirmed by conservative treatment with antiTB were included for study.* ***Results:*** *In the present study, among the study subjects 55% had anemia, 96% had neck rigidity, 8% had cranial nerve palsy, 45% had kernig's sign and 22 % had long tract sign. Among them most prevalent symptom was fever (92%). Among others, headache (67%), altered consciousness (46%), vomiting (40%) and neck stiffness (25%) were notable.* ***Conclusion:*** *Finally we conclude that tubercular meningitis is a very serious form of tuberculosis that can occur in different forms and can cause mortality and morbidity in endemic developing countries and also in developed countries due to emergences of immune compromised conditions. Further study is needed for better outcome.*

Keywords: *Tubercular Meningitis (TBM), Pulmonary Infection.*

Number of Tables: 04; Number of Figures: 03; Number of References: 08; Number of Correspondences; 03.

***1. Corresponding Author:**
Dr. Mohammad Abdul Hye
Associate Professor
Department of Pediatrics
Magura Medical College & Hospital
Magura, Bangladesh.
Email: dr.mahye@yahoo.com
Mobile: 01815245012

2. Dr. Md. Shamsur Rahman
Assistant Professor
Department of Pediatrics
Satkhira Medical College & Hospital
Satkhira, Bangladesh.

3. Dr. Md. Iqbal Hossain
Assistant Professor
Department of Pediatrics
Jashore Medical College & Hospital
Jashore, Bangladesh.

4. Dr. Shuperna Ahmed
Associate Professor
Department of Pharmacology
Magura Medical College, Magura, Bangladesh.

Introduction:

Tubercular meningitis (TBM) can occur as the sole manifestation of TB or concurrent with pulmonary or other extra pulmonary sites of infection. TBM carries a high mortality and morbidity, particularly among patients co-infected with HIV[1,2]. Delays in seeking medical care, diagnosis, and initiation of treatment are contributing factors to the high mortality and morbidity, especially in resource-limited regions. When diagnosed promptly, TBM can be cured with supervised medication administration and supportive care[3,4]. Patients with TBM develop typical symptoms and signs of meningitis including headache, fever, and stiff neck, although meningeal signs may be absent in the early stages. The duration of symptoms before presentation ranges from several days to several months. Especially in resource-limited settings, TBM cases may present in advanced clinical stages, with Glasgow Coma Scale scores of 10 or less[5,6]. Cranial nerve (CN) palsies, hemiparesis, paraparesis, and seizures are common and should raise the possibility of MTB as the etiology of meningitis. Patients often present with multiple CN palsies, most commonly involving CN III, VI, and VII. Chest X-ray is suggestive of active or previous pulmonary TB in approximately 50% of cases[7,8]. In this study our main goal is to evaluate the clinical characteristics of tubercular meningitis (TBM) patients.

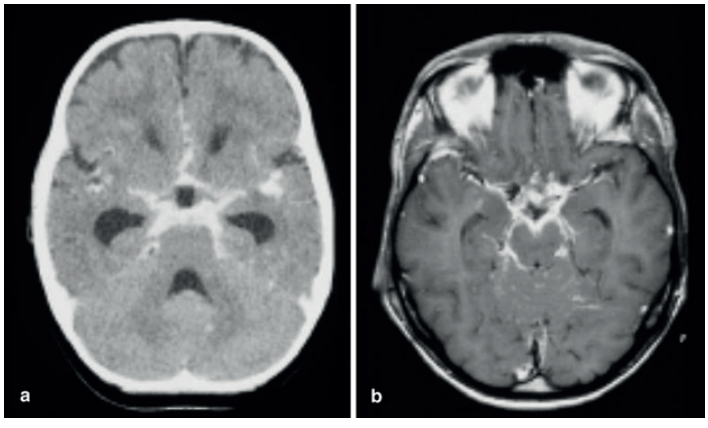

Figure-1a and1b: CT scan report TM patients

Received: 25 October 2024 *Accepted revised version:* 15 December 2024

Objective: General objectives are to evaluate the clinical characteristics of tubercular meningitis (TBM) patients. Specific objectives are to detect laboratory findings and the clinical symptoms and signs of patients.

Materials and Methods:

The experimental study conducted at pediatric unit of magura medical college hospital, magura from January 2021 to June 2024. Study population was a total 26 (twenty six) children aged 02 months to 12 years was selected randomly and sampling technique was purposive. All cases of tubercular meningitis confirmed by CSF study or confirmed by successful conservative treatment with anti-TB drugs. Pyogenic meningitis was excluded from the study. Anti-TB drugs treatment was given for 12 months. Follow up period is average 18 months during anti-TB treatment and after completion of drugs therapy. 5 patients with suspected tubercular meningitis were treated empirically with anti-TB drugs and responded successfully.

Statistical Analysis: First data were edited to the validity and consistency of the data. After proper verification data were coded and entered into computer by using SPSS software programs. Descriptive analysis was done by percentage, mean and standard deviation. Association was observed by appropriate statistical test at 95% confidence interval eg. odds ratio, Chi-squiare, t-test.

Result:

Table-I shows age distribution of the patients where most of the patients in study subjects belong to 2 months to 1 yr age group, 60%. The following figure is given below in detail:

Table- I: Distribution of baseline characteristics of study population (N=26).

Age group	Study population
2 months to 1 yr	60%
1yr to 5 yrs	25%
5 yrs to 12 yrs	15%

In figure-2 shows gender distribution of the patients (N=26) where male patients were higher than female. The following figure is given below in detail:

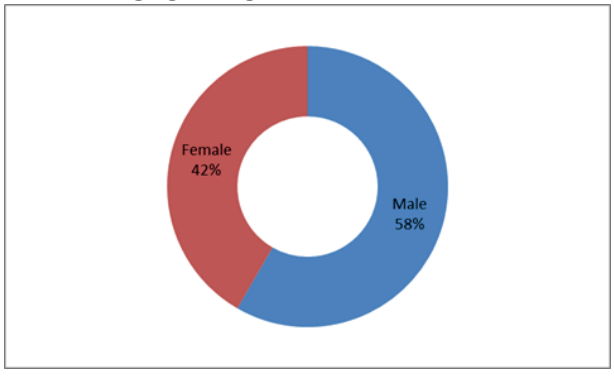

Figure-2: Gender distribution of the patients.

Table-II shows the distribution of the study subjects by physical sign. Among the study subjects 55% had anemia, 96% had neck rigidity, 8% had cranial nerve palsy, 45% had kernig's sign and 22 % had long tract sign. The following table is given below in detail:

Table-II: Shows the distribution of the study subjects by physical sign.

Variable	%
Anemia	55%
Neck rigidity	96%
Cranial nerve palsy	8%
Kernig's sign	45%
Long tract sign	22%

In figure-3 shows distribution of the study subjects by presenting symptoms. Among them most prevalent symptom was fever (92%). Among others, headache (67%), altered consciousness (46%), vomiting (40%) and neck stiffness (25%) were notable. The following figure is given below in detail:

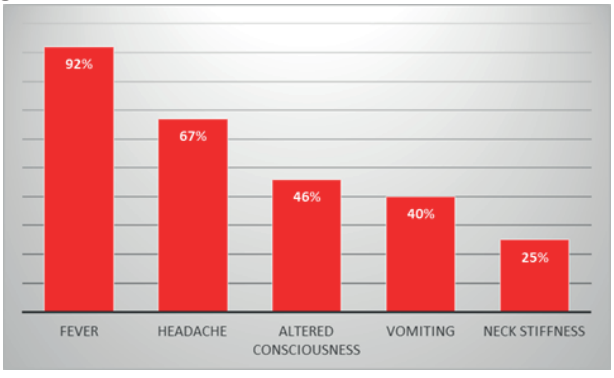

Figure-3: Distribution of the study subjects by presenting symptoms.

Table-III shows the distribution of the study subjects by fundoscopic examination finding, 80 % had normal eye, 9 % had optic atrophy and 11 % had papilloedema. The following table is given below in detail:

Table-III: The distribution of the study subjects by fundoscopic examination

Variable	%
Normal eye	80%
Optic atrophy	9%
Papilloedema	11%

Table-IV shows the distribution of the laboratory finding. Among the study subjects 4% shows positive gram stain, 100% shows high CSF protein and 46% showed MT over 10 mm. The following Table is given below in detail:

Table-IV: The distribution of the laboratory finding.

Variable	%
CSF Gram Staining:	
Positive	4%
Negative	96%
CSF Color:Straw/hazy	90%
WBC: Lymphocyte	70%
Protein:High	100%
MT:	
< 10 mm	54%
> = 10 mm	46%

Discussion:

According to the present study, the incidence in males was 58% and in females 42%. The incidence in both males and females is consistent with the study done by one study. Among the study subjects 55 % had anemia, 96% had neck rigidity, 8% had cranial nerve palsy, 45% had kernig's sign and 22 % had long tract sign. Also noted that 80 % had normal eye, 9 % had optic atrophy and 11 % had papilloedema. This was supported by one study where the incidence of papilloedema was 13.3 % and optic atrophy 3.3 % of cases and all are in TBM group not the NTBM. Other study observed papilloedema in 16.1% of cases 11. TBM is the severe form of extrapulmonary tuberculosis occurring in 7-12 % of TB patients in developing countries with high rate of mortality due to delay in diagnosis and proper treatment. In the absence of an early diagnosis and treatment, tubercular meningitis is characterized by high mortality (20-50%) and morbidity (20-30%).The cytological and biochemical analysis of cerebrospinal fluid is the cornerstone for diagnosis but there are diagnostic difficulties many a times in differentiating tubercular meningitis from nontubecular meningitis.

Conclusion:

From our study we conclude that tubercular meningitis is a very serious form of tuberculosis that can occur in different forms and can cause mortality and morbidity in endemic developing countries and also in developed countries due to emergences of immune compromised conditions. Further study is needed for better outcome.

Conflict of Interest: None.

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