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Research Article

**ANALYSIS OF NEUROLOGICAL SYMPTOMS AND SIGNS AT
THE PRESENTATION WITH CNS TUBERCULOSIS****Dr Faran Shahid¹, Dr Jamshed², Dr Nida Athar³**¹Services hospital Lahore, ²Ayub Medical College, ³DHQ Hospital Faisalabad.**Article Received:** April 2019**Accepted:** May 2019**Published:** June 2019**Abstract:**

Introduction: M. tuberculosis is an aerobic, non-motile, non-spore-forming, acid-fast bacillus (AFB) that infects primarily humans.

Aims and objectives: The main objective of the study is to analyze the neurological symptoms and signs at the presentation with CNS tuberculosis.

Methodology of the study: This cross-sectional study was conducted in Services hospital Lahore during October 2018 to March 2019. The data was collected from 100 patients through non probability sampling technique. In this study we find the neurological symptoms and signs at the presentation with CNS tuberculosis. For this purpose, we collect the data with different factors, and history of fever, headache and neck stiffness of more than 2 weeks duration.

Results: A total 100 patients were included in the study. Out of these 100 patients 32 patients were in highly probable TBM group and 18 cases in group II (Probable TBM) and 3 patients belonged to group III (Possible TBM). Out of these 53 patients 27(50.94%) patients were male and 26 (49.05%) were females with male to female ratio of 1.03:1.

Conclusion: It is concluded that early recognition and timely treatment of CNS TB is critical if the considerable mortality and morbidity associated with the condition is to be prevented.

Corresponding author:**Dr. Faran Shahid,**

Services hospital Lahore.

QR code



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INTRODUCTION:

M. tuberculosis is an aerobic, nonmotile, non-spore-forming, acid-fast bacillus (AFB) that infects primarily humans. Its doubling time is quite slow (15 to 20 h) and requires several weeks to grow on conventional Löwenstein-Jensen medium, where it tends to grow in parallel groups, producing the colonial characteristic of serpentine cording. Biochemical as well as RNA/DNA-based methods can identify *M. tuberculosis* from other AFB [1].

The acquisition of *M. tuberculosis* infection occurs through the inhalation of droplet nuclei containing the bacilli, eventually leading to deposition in the lung alveoli. Once in the alveoli, the bacilli interact with alveolar macrophages through a multitude of different receptors [2]. Once these innate immune cells are triggered, numerous cytokines and chemokines are released, the activation of a type 1 T-helper cell-mediated immune response occurs, and, ultimately, a granuloma is formed. Early in this process, prior to the actual containment of the infection, bacilli are filtered into draining lymph nodes, and there exists a low-level bacteremia in which *M. tuberculosis* disseminates to distant sites in the body [3].

Tuberculosis can affect any tissue or system of body. Common presentations of tuberculosis are primary complex, tuberculous lymph adenitis and progressive primary disease. Due to introduction of BCG vaccination just after birth the clinical pattern of tuberculosis has changed. No age is immune to tuberculosis [4]. It may affect any age ranging from intrauterine to upper limit of paediatric age. Incidence of infection increases as the age advances. Tuberculosis is an ancient disease that is known to have existed in prehistoric times. Tuberculosis is one of the commonest communicable diseases in a majority of the developing countries [5].

In Pakistan, tuberculosis is generalized and wide spread. There have been two prevalence surveys conducted in 1960-62 and 1974-78 with similar results. According to these surveys 54% of the entire

population is infected and this infection rate goes as high as 80% in age groups of 20-29 years and above. According to these surveys infection rate in children from 0-14 years of age was 25% in 1960-62 and 22% in 1974-78, 1.6% of the population above 10 years of age had chest radiograph suggestive of active cavitory or non cavitory pulmonary tuberculosis and 0.3% were sputum positive on microscopy and/or culture [6].

AIMS AND OBJECTIVES:

The main objective of the study is to analyze the neurological symptoms and signs at the presentation with CNS tuberculosis.

METHODOLOGY OF THE STUDY:

This cross-sectional study was conducted in Services hospital Lahore during October 2018 to March 2019. The data was collected from 100 patients through non probability sampling technique. In this study we find the neurological symptoms and signs at the presentation with CNS tuberculosis. For this purpose, we collect the data with different factors, and history of fever, headache and neck stiffness of more than 2 weeks duration.

STATISTICAL ANALYSIS:

The data was collected and analyzed using SPSS version 18.0. All the values were expressed in mean and standard deviation.

RESULTS OF THE STUDY:

A total 100 patients were included in the study. Out of these 100 patients 32 patients were in highly probable TBM group and 18 cases in group II (Probable TBM) and 3 patients belonged to group III (Possible TBM). Out of these 53 patients 27(50.94%) patients were male and 26 (49.05%) were females with male to female ratio of 1.03:1. The variety of neurological signs and symptoms in these patients at the time of initial diagnosis is summarized in table 02. The reported length of any symptoms before admission ranged from 5 days to 4 months with the mean of 18.2 days and median of 20 days.

Table 02: Neurological symptoms or signs at the time of admission in 53 children with CNS tuberculosis

S No	Symptoms/sign	No. of patients	Percentage
1	Fever	53	100%
2	Irritability	10	18.86%
3	Lethargy	35	66.03%
4	Unconsciousness	35	66.03%
5	Seizures	50	94.33%
6	Weakness	10	18.86%
7	Hemiparesis	10	18.86%
8	Nuchal rigidity	30	56.60%
9	Brudzinski sign	25	47.16%
10	Kernig sign	25	47.16%
11	Cranial nerve paresis	35	66.03%
12	Hypertonia	38	71.69%
13	Hypotonia	10	18.86%
14	Babinski sign	20	37.73%
15	Full anterior fontanelle	5	9.43%
16	Cranial nerve paresis	35	66.03%
17	Irregular respiration	20	37.73%
18	Posturing	20	37.73%

DISCUSSION:

Tuberculosis is still a major health hazard in children in India. Annual rate of infection (ARI) is 3%. Prevalence of active disease in the population is 15-25/1000 population, one fourth of them being bacillary or open cases of tuberculosis [7]. Thus out of total estimated 813 million population almost 15 million are infectious. Incidence of tuberculosis in children depends upon the magnitude of infectious adults who form the reservoir of tuberculous disease. Children having primary tuberculosis rarely if ever infect other children. Tuberculosis is more common among the socioeconomically deprived people [8]. It is more common in non-white population of Western countries. Children under the age of 5 years have an overall case rate five times higher than rate of children between 5-14 years.

Tuberculosis is more prevalent in winter and spring season in the Northern hemisphere [9]. Close contact among family members during winter and more frequent coughing produced by winter and spring respiratory infections is a determining factor. Changes in mycobacterial disease morbidity and mortality are occurring due to HIV which predisposes to active Mycobacterial disease [10]. Incidence of tuberculosis in Pakistan is not different from other developing countries. In Pakistan tuberculous infection is generalized and wide spread [11].

CONCLUSION:

It is concluded that early recognition and timely treatment of CNS TB is critical if the considerable mortality and morbidity associated with the condition is to be prevented.

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