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RESEARCH ARTICLE

Clinical profile of Central Nervous System Tuberculosis in Kanniya kumari medical college.

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Abstract

Background: Tuberculosis of the central nervous system is an important cause of morbidity and mortality. Once a disease mainly of childhood, it is now seen at any age and is equally frequent in adults. They may present as Meningitis, Tuberculoma, Potts Paraplegia, Intrapinal Granuloma or Arachnoiditis. This study was conducted to analyse various clinical presentations of CNS tuberculosis and their sequelae. **Methods :**An observational study was conducted in 30 patients admitted in Kanniyakumari Government Medical College from Jan 2016 to December 2016 with CNS manifestations of Tuberculosis. Computed tomography(CT), electroencephalography (EEG) and clinical findings were taken. **Results:** In the present study, the most common CNS presentation was Tuberculous Meningitis followed by Tuberculoma. Common age group being between 15-19 yrs. Aseptic meningitis had a good prognosis compared to Obstructive Hydrocephalus which had a bad prognosis. In this series, complete recovery was 66.6%, mortality was 13.4% and Sequelae in 20%. **Conclusion:** CNS tuberculosis is being reported more often nowadays due to its awareness and improved diagnostic modalities. Resistance to drugs has added a new challenge. Morbidity and mortality can be reduced by a great extent with early recognition and timely treatment

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Introduction:-

Both as a cause of death and disability, Tuberculosis of the Central Nervous System is of great clinical importance. In children the condition most often arises as a consequence of primary or miliary tuberculosis, but in adults it usually develops in individuals with known tuberculosis elsewhere, especially in the lung. Once a disease mainly of childhood, it is now seen at any age and is equally frequent in adults. The pattern of Tuberculous infection of the Nervous System is changing. In an American epidemiological study of extrapulmonary tuberculosis, up to 10% of cases showed CNS involvement¹, whereas CDC data showed that 6.3% of extrapulmonary cases (1.3% of total tuberculosis cases) had CNS TB². A study done at Taiwan, 1.5% of TB deaths between 1997 and 2001 were attributable to CNS disease, a percentage that had increased from previous years³.

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Risk factors for CNS tuberculosis include age (children > adults) HIV-coinfection, malnutrition, recent measles in children, alcoholism, malignancies, the use of immunosuppressive agents in adults and disease prevalence in the community⁴. The clinical presentation is determined by the nature of the pathological process. It commonly takes the form of a meningitis, but encephalopathy (encephalitis) can also occur. At other times, extra medullary Tuberculosis can produce secondary neurological lesions or tuberculosis disease is confined to spinal cord. Seizures, either focal or generalised, may occur during acute illness or months after treatment⁵.

Materials and Methods:-

An observational study was conducted in 30 patients admitted in Kanniyakumari Govt. Medical College from Jan 2016 to December 2016 with CNS manifestations of Tuberculosis. CT Scan was done for all 30 patients. EEG (Electro Encephalogram) was done for 7 Patients

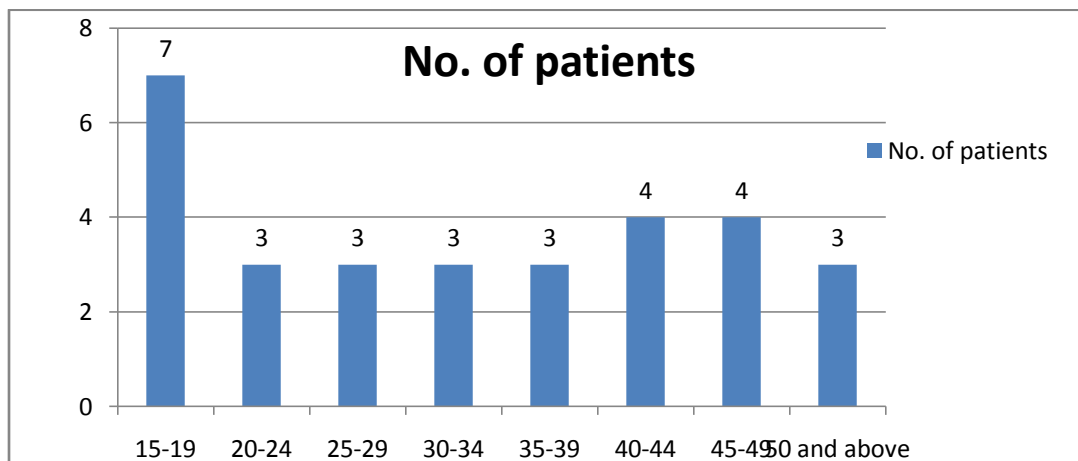
Following the clinical, CSF and CT Scan, study patients were analysed for

1. Age and Sex Incidence
2. Mode of presentation
3. Symptom analyses
4. Neurological Sequelae

Observation

Table – 1:- Age Incidence

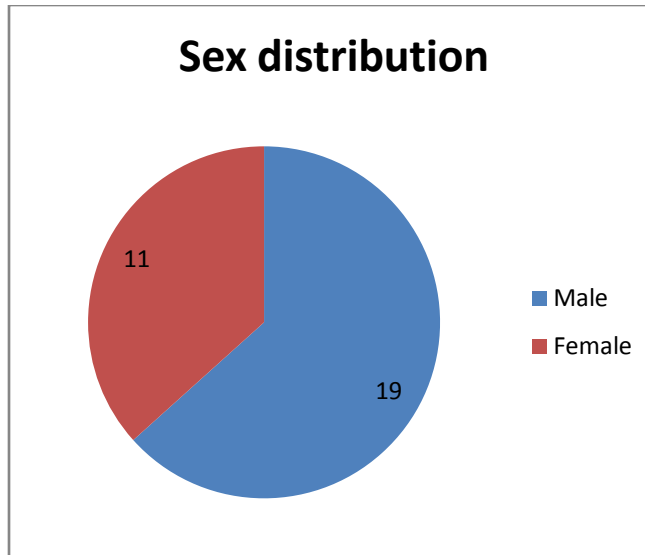
Age group	No. of patients
15 – 19	7
20-24	3
25-29	3
30-34	3
35-39	3
40-44	4
45-49	4
50 and above	3



In the present study, the vulnerable age group of CNS TB belonged to 15-19 years carrying 23% of the total patients.

Table – 2:- Sex distribution

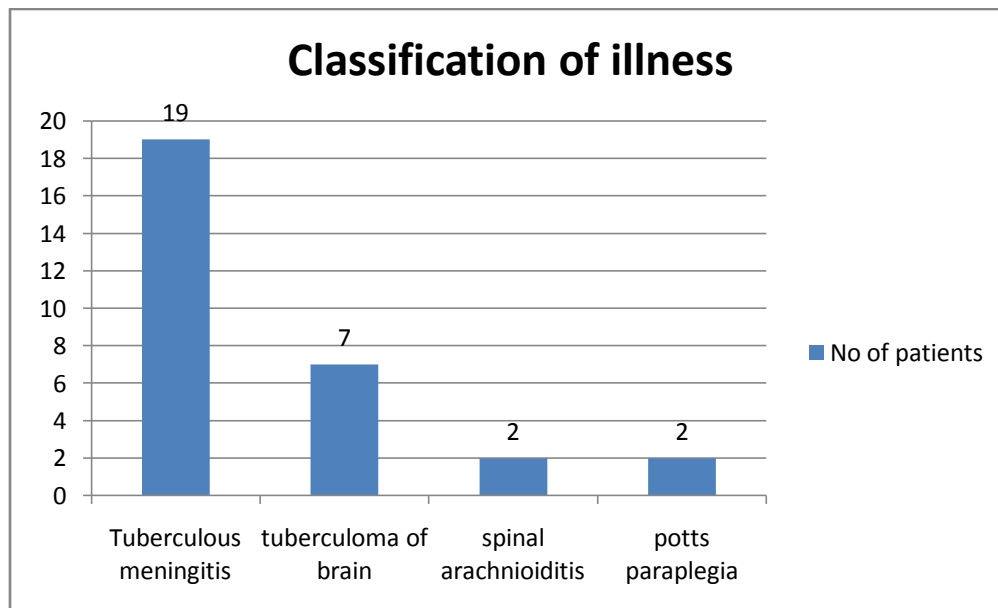
Sex	No. of patients	Percentage
Male	19	64
Female	11	36



In the present study,64% were males and 36% were females.

Table -3:- Classification Of The Illness

Classification	No. of patients	Percentage
Tuberculous meningitis	19	63.3
Tuberculoma of brain	07	23.3
Spinal Arachnioiditis	2	6.6
Potts Parapelgia	2	6.6



In the present study of 30 patients, 19 patients,(63.3%) belongs to the class tuberculous meningitis, 7 Patients (23.3) belongs to the class tuberculoma of brain, 2 patients (6.6%) belongs to the group spinal arachnoditis and 2patients belongs to the group pott’s paraplegia(6.6%)

Table -4:- Symptom Analysis

Major Classification	Symptom	No.of patients
TB Meningitis	Fever	18
	Headache,Vomiting	17
	Altered sensorium	6
	Double vision	5
	Photophobia	4
	Convulsion	3
	Weakness of limbs	2
	Numbness of extremities	1
	Retention of Urine	1
	Dysphagia	1
Tuberculoma of Brain	Fever	3
	Convulsion	6
	Headache and Vomiting	5
	Numbness limbs	2
	Weakness of limbs	2
	Numbness and weakness of lower limbs	2
	Numbness and weakness of lower limbs	2
	Retention of urine	1

Table 4:- Symptom Analysis

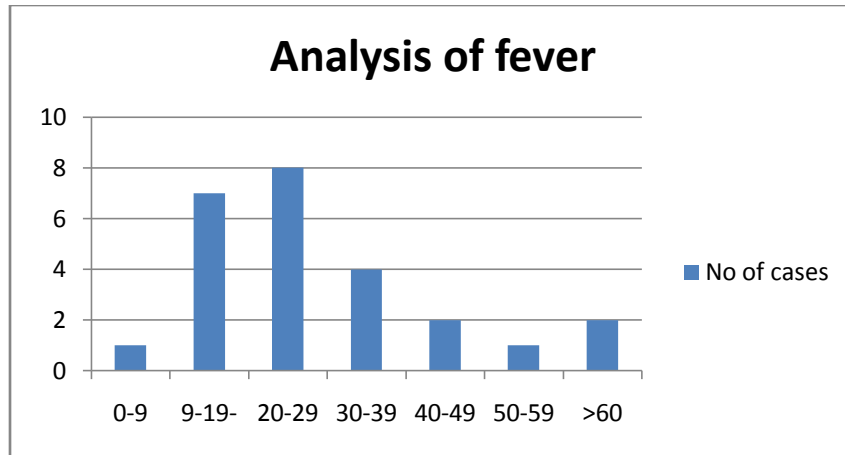
In patients with tuberculous Meningitis, fever associated with headache, vomiting was the main presentation, presented in 89.4%. Photophobia was present in 4 cases who also had features of rise in intracranial tension. Numbness in the right half of the body was presented in one case. Weakness of right upper and lower limbs was presented in one case of Tuberculoma of brain.

2 patients of TB Meningitis in the course of their treatment developed spinal arachnoiditis in the form of lower limb weakness and numbness after 45 days.

2 patients had potts paraplegia. They presented as weakness and numbness of lower limbs and bladder retention developed in one case in the later period

Table 5:- Analysis Of Fever

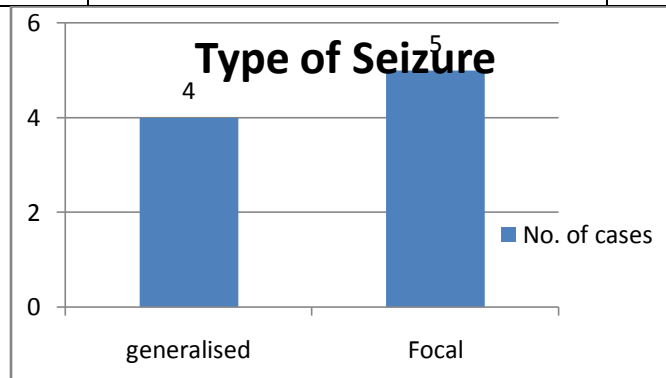
Duration of days	No.of cases	percentage
0-9	1	3.3
10-19	7	28
20-29	8	32
30-39	4	16
40-49	2	8
50-59	1	3.3
>60	2	6.6



In the present study, higher number of cases had duration of fever for 2-3 weeks . 2 Cases (6.6%) had duration of fever for a longer period, more than 60 days.

Table 6:- Types Of Seizures

Type	No.of cases	percentage
Generalised	4	13.3
Focal	5	16.6



In the present study generalized seizures were present in 4 patients(13.3%) , Focal seizures were present in 5 patients (16.6%). Generalised seizures were present invariably in Tuberculous meningo encephalitis patients and focal seizures were present in patients with tuberculoma of brain.

Table – 7:- Neurological Presentation And Sequelae

Type of presentation	No.of Cases	Recovery	Sequelae
Tuberculous meningitis	7	7	-
Meningo encephalitis	4	3	Dead (1)
Basal meningitis	1	-	Dead (1)
Brainstem lesion (quadripareisis)	1	-	Dead (1)
Cranial Nerve Palsy	5	4	Ophthalmoplegia(1)
Monoparesis (TB meningo encephalitis)	1	1	-
Spinal Arachnoiditis	2	-	Paraplegia(2) Optic atropy(1)
Tuberculoma	7	5	Dead(1) Hemiplegia(1)
TB Spine	2	-	Paraplegia(2)

In the present study 7 patients of tuberculous meningitis recovered after treatment without any sequelae. 4 patients developed meningo encephalitis with fits and altered sensorium, and 1 patient died during the illness. 1 patient

developed right lower limb monoparesis, but recovered 4 patients had third nerve palsies who had not good recovery. 1 patient had combination of third, sixth and seventh nerve palsies and features of basal meningitis and died during the illness. One case presented with focal neurological damage as Brainstem lesion with features of Quadripareisis and dysphagia and died during the illness.

Fundus findings included:-

Papilloedema in 6 Patients
 2 patients of tuberculous meningitis
 4 patients of Tuberculoma Brain
 Optic atrophy in 1 patient (Tuberculous Arachnoiditis)

Discussion:-

Tuberculosis remains a serious medical problem in economically depressed countries. Tuberculous meningitis constitutes 50-55% of all bacterial meningitis⁶.

Sex Incidence:-

Among the sex incidence, males rank foremost. 19 out of 30 cases were males (63%) and 11 out of 30 cases (36%) were female. previous studies favoured incidents among males are more than females (Udani et al)⁶

Classification:-

In the present study of 30 patients, 19 patients (63.3%) belongs to the class Tuberculous meningitis, 7 patients (23.3%) had tuberculoma of Brain. Two patients (6.6%) had pott's paraplegia. Among the extrapulmonary tuberculosis, TB Meningitis has a higher incidence. (Tandon et al)⁷

Tuberculous Meningitis:-

Onset : In the present study the onset is acute in 4% and subacute in 30% previous studies favoured subacute onset in adults 35% (Dastur,Udani)⁸

Fever : Fever was observed invariably in all patients 95.7% It is of low grade pyrexia and fever associated with headache and vomiting is presented in 89.4% Fever is absent in 10% (Tandon et al)⁷

Convulsion : Convulsion was present in 3 cases (10%) in the present study

Licln et al study⁹ said convulsion are frequent below 2 yrs (17%) and less frequent in adults (9.5%)

Neurological Presentation

Signs of meningeal irritation like neck stiffness and kernigs sign positive was present invariably in all patients with tuberculous meningitis.

Hydrocephalus

Raised intracranial pressure is present at all stages of the disease. Papilledema is seen in 40% which may lead to optic atrophy. Mactier et al study of 79 cases in Australia incidence of obstructive hydrocephalus in 2.8%¹⁰. In the present series 2 patients (6.6%) had obstructive hydrocephalus and one patient (3.3%) had communicating hydrocephalus.

Cranial Nerve Palsy

20 – 30% may develop cranial nerve palsies (Dastur et al)⁸. As per Tandon et al⁷ – 10 to 25%. The sixth nerve is the most affected followed by third, fourth and Seventh⁴. In the present series 4 patients had 6th nerve palsy, One patient had third nerve palsy. All of them recovered. One patient had Combined third, Sixth and Seventh nerve palsy who died during the illness.

Focal Neurological Deficit

One case presented with Quadripareisis and dysphagia, died during the illness probably due to brain stem lesion.

Tuberculoma Of The Brain:-

In the present study, 7 cases (23.3%) were found to have tuberculoma of brain. The Incidence of tuberculomas among intracranial space occupying lesions varies from 3.3 – 17.6% in different series since 1970.

Papilledema:-

Presented in 4 patients with tuberculoma (57.1%). Reported incidence by Tandon study⁷ is 87%

Tuberculous Arachnoiditis:-

In the present study 2 cases of tuberculous meningitis (6.6%), in the course of their treatment later presented as spinal arachnoiditis. They showed good recovery, but they carried a morbidity of paraparesis as their sequelae, but they are on follow up further.

Potts Paraplegia:-

In the present study 2 cases had presented with potts paraplegia(6.6%)
Both of them were males, below 40 years and both of them, the thoracic spine was involved.
The incidence of potts paraplegia is around 10% of CNS tuberculosis¹¹

Conclusion:-

1. In the present series of 30 cases during the period from January 2016 to December 2016, 19 patients (63.3%) were tuberculous meningitis, 7 Patients (28.3%) were tuberculoma of brain, 2 patients (6.6%) were tuberculous Arachnoiditis and 2 patients were pott's paraplegia (6.6%)
2. Males are more affected than females.
3. 15-19 years were vulnerable age group for TBM in adults
4. Minimum period of fever for 2 weeks is present in a majority of cases
5. In TBM patients, Who had presented as 'Aseptic Meningitis' had good recovery without any sequelae.
6. Patients presented with obstructive hydrocephalus had a bad prognosis
7. Optic atrophy was observed in a patient with Tuberculous Arachonoiditis
8. CT Scan finds an important role in the diagnosis of tuberculoma of Brain
9. Successful management of TBM depends on early diagnosis and effective antituberculous therapy
10. In this series complete recovery was 66.6%, mortality was 13.3% and Sequale in 20%

References:-

1. Rieder H L, Snider D E, Jr, Cauthen G M. Extrapulmonary tuberculosis in the United States. *Am Rev Respir Dis.* 1990;141:347–351
2. CDC, author. Extrapulmonary tuberculosis cases and percentages by site of disease: reporting areas, 2005. Atlanta, GA: Centers for Disease Control and Prevention; 2005
3. Lu T H, Huang R M, Chang T D, Tsao S M, Wu T C. Tuberculosis mortality trends in Taiwan: a resurgence of non-respiratory tuberculosis. *Int J Tuberc Lung Dis.* 2005;9:105–110
4. Cherian A, Thomas SV. Central nervous system tuberculosis. *African Health Sciences:* 2011 march; 11(1) :116-127
5. Berger JR (1994) Tuberculous meningitis. *Curr Opin Neurol* 7:191–200
6. Udani, P.M., Parekh, U.C., Dastur, D.K. Neurological and related syndromes in CNS tuberculosis. Clinical features and pathogenesis. *J Neurol Sci.* 1971;14:341
7. Tandon PH, Bhargava S. Effect of Medical Treatment in intracranial tuberculoma: a CT study; *Tubercle* 1985; 66:85
8. Dastur DK, Udani PM. The pathology and pathogenesis of tuberculous encephalopathy. *Acta Neuropathol.* 1966 Jul 7;6(4):311–326.
9. Lincoln, E.M., Sordillo, S.V.R., Davis, P.A. Tuberculous meningitis in children. A review of 167 untreated and 74 treated patients with special reference to early diagnosis. *J Pediatr.* 1960;57:80
10. *British Medical Journal* No.7176, 9 Jan 1999-C Etle and MH Wilcox
11. Saeed S.H., Spinal Tuberculosis; A Review. *Indep Rev Oct-Dec 2013;15(10-12):* 481-490.