



A STUDY ON CLINICAL AND LABORATORY PROFILE OF TUBERCULOUS MENINGITIS

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ABSTRACT

It's a study on analysis of clinical presentation and CSF analysis in fifty cases of meningitis in adults. The study aimed to identify the role of CSF ADA activity and neurological complications in tuberculous meningitis.

KEYWORDS : Tuberculous Meningitis, Cerebrospinal fluid, Adenosine deaminase.

INCLUSION CRITERIA:

Patients with classical clinical presentation on meningitis and patients with history or evidence of pulmonary or extra pulmonary tuberculosis.

EXCLUSION CRITERIA:

Patients with cerebro vascular accidents, viral encephalitis, cerebral malaria and HIV.

RESULTS:

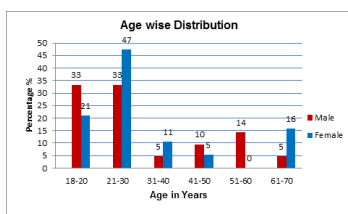


Table No : 1 Age wise distribution of meningitis among males and females.

Patients aged 18 and above were included in the study, youngest patient being 18 years and the oldest patients was of 70 years. The majority of patients were in the second to third decade.

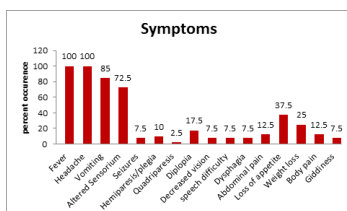


Table No : 2 percent occurrence of symptoms in meningitis.

Fever and headache were present in all cases followed by vomiting which was present in 85% of cases. Altered sensorium was present in 72.5% of cases, but seizures was present only in 7.5% cases

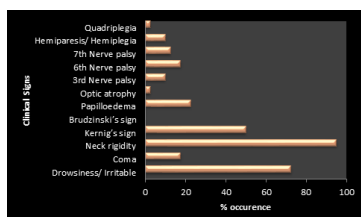


Table No : 3 Clinical signs in Meningitis

72.5% case were drowsy or irritable at presentation 17.5% cases were in coma. Though majority (95%) had neck rigidity, Kernig's sign was there only in 50% cases where as Brudzinski sign was not noticed in any cases. Abducens nerve is the commonest nerve involved followed by 7th nerve, then 3rd nerve in this study.

Hemiparesis/plegia was present in 4 cases, one case had quadriplegia with TBM. Papilledema seen in 22% cases.

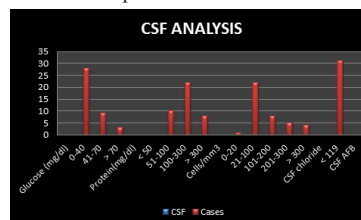


Table No : 4 CSF parameters in case distribution

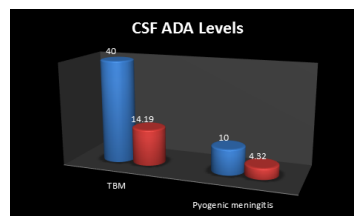


Table No:5 CSF ADA levels in Tuberculous meningitis and pyogenic meningitis

The value of unpaired t test is $t = 6.54$ with a p value of $p < 0.001$, which is statistically highly significant. So in the present study the value of mean CSF ADA in TBM is significantly higher as compared to pyogenic meningitis.

DISCUSSION:

The peak incidence in the present study was found in the young adults in the age group of 21 to 30 years (40%) followed by 27.5% cases in the age group of 18-20 years. Fever and headache was the predominant symptoms in the present study which was present in all cases. Hosoglu et al., observed 91.1% incidence of fever and 96% incidence of headache in their study. Altered sensorium was present in 72.5% of cases on presentation, but seizure was present only in 7.5% of cases. In present study neck rigidity was present in 95% of cases and Kernig's sign in 50% of cases, but could not demonstrate Brudzinski sign in any cases. Khatua et al., in their studies noticed neck rigidity in 54% cases, Kernig's sign in 40% cases, but no cases had Brudzinski sign. Papilloedema was present in 22.5% of cases, optic atrophy in (2.5%) but none of the cases revealed choroid tubercles on fundoscopy. Girgis et al had a 7% cases with papilloedema, 4% cases with optic atrophy in their study. Cranial nerve palsies were present in 40% of the cases, 6th nerve being the most common nerve involved followed by 7th nerve and 3rd nerve. Girgis et al., had noticed cranial nerve palsies in 50% of cases, 6th nerve being the most common followed by 3rd and 7th nerves. In the present study hemiplegia/ paresis noticed in 10% of cases which was consistent with Thwaites et al., in which incidence was 8% whereas Hosoglu et al., noticed in 22.8% of cases. CSF protein was elevated in all cases. The protein values ranges from 54mg-2000mg with a mean value of 267.6 mg/dl. 55% of cases had protein in the range of 100-300mg. Thwaites et al., observed a protein range of 80-490mg/dl. CSF glucose was found to be low in majority (70%) of cases. 85% of cases had CSF glucose less than 50% of RBS. 70% of

cases had <40mg/dl of glucose. Only three patients had more than 70mg/dl. All the cases who expired had low level of CSF glucose, which was consistent with Hosoglu et al. CSF cells were moderately increased in all the cases, with a ranges from 18-600 cells. Girgis et al., noticed a range of cells from 30-900 cells/mm³. Minimum cells noticed in the present study was 18, and maximum being 600. All had >60% lymphocytes.

In the present study the mean value of CSF-ADA in TBM is 14.2 was found to be significantly higher than in the pyogenic group 4.32 with a P value of p<0.001. At cut of value 10, the sensitivity, specificity and positive predictive value of CSF ADA in TBM were 75%, 90% and 96.77% respectively. Kim KI et al, in their studies found that, the mean value of CSF ADA in TBM 15.5U/L was significantly higher than other meningitis. The sensitivity of diagnosing TBM in their study was 80% and a specificity of 98% respectively. Rajendra Prasad et al, in their studies found that, mean ADA level in TBM was 6.43 U/L, where as in pyogenic meningitis and in aseptic meningitis it was 1.89 and 0.90 + 0.45 U/L respectively. The sensitivity and specificity of this test for diagnosing TBM was 100% and 97.87% respectively at cut of value 3.3 U/L. The present study could not reveal any correlation between CSF ADA and other CSF parameters statistically where as it shows that, quantification of ADA in CSF is a simple, reliable and rapid method for diagnosing TBM

CONCLUSION

TBM continue to be a serious illness mostly affecting the young adults. CSF analysis continues to be a key in establishing the diagnosis. Early diagnosis and treatment can make complete recovery even in comatose patients. Peak incidence of cases were in 21-30 age group (40%). Fever and headache was present in 100%, vomiting in 85% and altered sensorium in 72.5% cases. Majority of patients presented with a duration of symptoms of 15-30 days (45%). Altered consciousness in the form of drowsiness / irritability was present in 72.5% of cases where as 17.5% cases were in coma. Neck rigidity was present in 95% of cases, Kernig's sign in 50% cases but none had Brudzinski sign. Papilloedema was present in 22.5% of cases, optic atrophy in 2.5% of cases. Cranial nerve palsy was observed in 40% of cases, 6th nerve being the commonest followed by 7th nerve and 3rd nerve. Hemiparesis/ hemiplegia was present in 10% cases and quadriplegia in 2.5% cases. CSF glucose level was reduced (<40mg) in 70% of cases with a mean value of 36.9 mg/dl. CSF protein was elevated in all cases with mean value of 267.6mg/dl and majority were in the range of 100-300 mg/dl. All patients had elevated CSF cells with >60% lymphocyte predominance (mean 143.4 cells/ mm³). Majority were in the range of 21-100 cells/mm³. None of the cases had microbiological proof, in the form of AFB staining. CSF chloride was reduced in 77.5% cases, and Pandy's test was positive in 80% cases. CSF ADA was elevated in TBM group than in the pyogenic group. Quantification of ADA in CSF may be considered as a simple, reliable and rapid method for diagnosing TBM.

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