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A Study of the Diagnostic Role of CSF Adenosine Deaminase (ADA) in Various Types of Meningitis

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Abstract

Background: Meningitis is caused by bacteria, viruses, and fungi. The incidence of tubercular meningitis is very high in developing countries like India. The clinical features of meningitis depend on the causative organisms and CSF analysis can help in differentiating the various causes of meningitis. The important goal for the management of meningitis includes early recognition and prompt treatment. Determination of CSF-ADA (Adenosine Deaminase) levels may be one of the easy and reliable methods for differentiating tubercular from nontubercular meningitis. **Methods:** This prospective study was conducted in the Department of General Medicine in collaboration with the departments of Neurology, Biochemistry, and Microbiology of Prathima Institute of Medical Sciences, Nagunur, Karimnagar. The following test Important clinical details for patients suspected of meningitis were done. It included information regarding the duration of fever, signs of meningeal irritation, focal neurological deficits and cranial nerve palsies were elicited. Laboratory examination included CSF analysis (appearance, cell counts, biochemistry, Gram, AFB & India ink stain), blood counts, blood culture & sensitivity, Mantoux test, HIV test. **Results:** The percentages of tuberculous, bacterial and viral meningitis were 48%, 26%, and 26% respectively. The CSF ADA level was highest in tuberculous meningitis, the mean value being 24.5 U/L. The mean value of ADA in bacterial meningitis was 4.54 U/L. Using 10U/L as cutoff value of CSF-ADA we found Sensitivity=100%, Specificity = 92.85%, Positive Predictive Value = 91.66% Negative Predictive Value =100%. **Conclusion:** CSF ADA is a simple, time saving, a cost-effective indirect test that helps in identifying the type of meningitis, differentiating tuberculous from nontuberculous etiology. Further among the nontuberculous group of meningitis, ADA values are lowest in viral meningitis and thus it can aid in distinguishing bacterial from viral etiology.