

A MICROBIOLOGICAL STUDY ON THE AETIOLOGICAL AGENTS OF ACUTE MENINGITIS AND MENINGOENCEPHALITIS IN A TERTIARY CARE HOSPITAL

ABSTRACT

Background

Acute central nervous system infections are medical emergencies requiring immediate diagnosis and treatment. As the clinical manifestations cannot always be relied upon, rapid and reliable diagnostic methods are of utmost importance for prompt initiation of therapy. Acute meningitis/meningoencephalitis is an important cause of mortality and long term neurological sequelae worldwide. Despite the availability of potent newer antibiotic therapy, the mortality rate remains significantly high in India and other developing countries.

Aim & Objectives

The objective of this study was to determine the distribution of acute meningitis/meningoencephalitis and its aetiological agents among adults admitted in a tertiary care hospital.

Methods

A total of 100 patients >18years of age with signs and symptoms of acute meningitis/meningoencephalitis were included in the study. Cerebrospinal fluid (CSF) was collected and sent to the laboratory for cytological and biochemical analysis. CSF was subjected to Gram stain and latex agglutination test to detect capsular antigens of common bacterial pathogens. Bacterial and fungal culture were performed by standard microbiological methods. Serum and cerebrospinal fluid (CSF) were tested for the presence of IgM antibodies against viruses like Japanese encephalitis virus (JEV), Dengue virus (DENV), Herpes simplex virus (HSV) and Varicella zoster virus (VZV).

Results

A total of 31 aetiological agents were identified in 29 (29%) clinically suspected cases with two patients having dual infection. Of the aetiological agents identified, viruses (23%) were the predominant pathogen followed by bacteria (6%) and fungi (2%). 23 viral agents were identified from 21 patients with two patients having dual infection (JEV & DENV and JEV & HSV). Bacterial causative agents included *Streptococcus pneumoniae* (n = 2), *Escherichia coli* (n = 1), *Klebsiella pneumoniae* (n=2) and *Pseudomonas aeruginosa* (n=1). From both the patients with fungal meningitis/meningoencephalitis, *Cryptococcus neoformans* was isolated.

Conclusion

Viruses were found to be the common cause of acute meningitis/meningoencephalitis than bacterial agents among the study population in the present study. Gram negative bacilli were found to be more frequently isolated from the patients included in this study. Established organisms of meningitis such as *Haemophilus influenzae* and *Neisseria meningitidis* were not isolated in this study. As early diagnosis is crucial in disease treatment, the need of point of care test is recommended.

Key words: Acute meningitis/meningoencephalitis, Aetiological agents, CSF.