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Etiology of acute encephalitis cases in Bihar, India

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Statement of the Problem: Acute encephalitis syndrome (AES) is a major seasonal public health problem in many states of India including Bihar. The total number of reported AES cases and deaths from Bihar was 1358 and 355 respectively in 2014. Despite efforts of the Bihar Health Department and the Government of India, burden and mortality of AES cases has not decreased, and definitive etiologies for these illnesses have yet to be identified. The present study was undertaken to study the specific etiology of AES in Bihar.

Methodology & Theoretical Orientation: Cerebrospinal fluid and/or serum samples from AES patients were collected and tested for various pathogens including viruses and bacteria by ELISA and/or Real Time PCR.

Findings: Of 540 enrolled patients, 33.3% (180) tested positive for at least one pathogen of which 23.3% were co-positive for more than one pathogen. *O. tsutsugamushi* was the most common etiology (25%) followed by Japanese Encephalitis Virus (8.1%), West Nile Virus (6.8%), Dengue Virus (6.1%), and Chikungunya Virus (4.5%). *M. tuberculosis* and *S. pneumoniae* each was detected in ~ 1% cases. *H. influenzae*, adenovirus, Herpes Simplex Virus -1, enterovirus, and measles virus, each were detected occasionally. The presence of scrub typhus was confirmed by PCR and sequencing. Bihar strains resembled Gilliam like strains from Thailand, Cambodia and Vietnam. Most of the patients were referred from Patna and its surrounding districts. Of the 15 districts referring >10 cases, eleven showed overall high positivity (>30% positives), three districts showed moderate positivity (>20-30%) and one (Muzzafarpur) showed low positivity (10%) (p value=0.0014, Chi square=13.14).

Conclusion & Significance: The highlights of this pilot AES study from Bihar were detection of an infectious etiology in one third of the AES cases, multiple etiologies, and emergence of *O. tsutsugamushi* infection as an important causative agent of AES in Bihar.

Biography

Amita Jain is a multifaceted Medical Teacher who has contributed immensely in the Field of Microbiology. She has worked in many areas of Medical Microbiology including Tuberculosis, Bacteriology and Virology. She is a keen Researcher and has successfully completed many research and public health projects and published several papers, some of which are highly cited. She has guided 24 PhD students and provided guidance to many Under-graduate and Post-graduate students. She has established new diagnostic and research facilities, which are of immense help to medical students, researchers and patients. She has investigated several epidemics of swine flu, dengue, acute encephalitis, hepatitis, drug resistant TB, etc. She has provided diagnostic services to Uttar Pradesh State Health Services in the field of Virology and Tuberculosis. She has organized trainings for laboratorians and community awareness health programs.

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