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Abstract (publication only)

How to differentiate infectious and non-infectious encephalitis? A retrospective study of 198 cases

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Objectives: Encephalitis is defined as a brain inflammatory process associated with neurologic dysfunction. Despite recent advances in molecular biology tests for pathogen detection, and the discovery of antibodies-mediated encephalitis, the cause of 40% to 60% of cases remains unresolved. We aimed to identify clinical features that may be used for the early discrimination between infectious, and non-infectious, causes of encephalitis. **Methods:** We performed a retrospective, observational study of all adult (> 15 years) inpatients diagnosed with encephalitis in the Rennes University Hospital. Cases were identified through two computerized databases: the institution diagnosis coding system (PMSI), and the infectious diseases and intensive care unit (ICU) specific database (4D). Data were extracted from medical charts through a standardized questionnaire. HIV-infected patients were excluded. Patients with infectious and non-infectious causes of encephalitis were compared using Student's t-test ($n > 30$) or the Mann-Whitney test for quantitative variables, and Fisher's exact test for categorical variables. Variables with a P value < 0.25 in univariate analysis were entered into the multivariate analysis, using logistic regression models. **Results:** During years 2000-2011, 198 non-HIV infected patients were diagnosed with encephalitis. Sex ratio M/F was 1.08, median age was 62 years [range, 16-88 years], and 56 patients were immunocompromised. No significant seasonal trend was observed. Patients were admitted in the infectious diseases unit ($n=102$), the neurology department ($n=93$), and/or the ICU ($n=68$). Median duration of hospitalization was 22 days [2-800], with an in-hospital mortality of 7.5%. The cause of encephalitis was infectious in 81 cases (41%), inflammatory in 42 cases (21%), malignancy in 12 cases (6%), and remained undetermined in 63 cases (32%). Main infectious encephalitis were HSV-1 or 2 (11%), VZV (8%), listeriosis (6%), and tuberculosis (4%). Main inflammatory encephalitis were acute disseminated encephalomyelitis (4%), and primary central nervous system (CNS) vasculitis (4% each). Main malignancy was CNS lymphoma (5%). Variables significantly associated with infectious encephalitis on multivariable analysis were: older age ($P=0.001$), neurocognitive disorders ($P=0.026$), and fever ($P < 0.001$). **Conclusion:** Infectious agents remain the most frequent causes of encephalitis, and should be especially investigated in older patients, with neurocognitive disorders, and fever.