

Factors associated with a diagnosis of herpes simplex viral encephalitis in patients with febrile, acute neurological impairment

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Objectives

Herpes Simplex Virus (HSV) encephalitis is a severe disease. Sequelae are frequent, peculiarly if the acyclovir is not precociously initiated. Early diagnosis is therefore mandatory; however, patients often present with a non-specific association of fever and acute neurologic impairment (generally seizure, confusion, or altered consciousness). We aimed to determine the factors associated with a diagnosis of HSV encephalitis in patients presenting with a febrile, acute neurologic impairment.

Methods

We performed a retrospective, case-control study. The cases were the patients who attended to the French Alpine hospitals (Grenoble, Chambéry, Annecy) between 2007 and 2013 with i) an acute neurologic impairment, and ii) detection of HSV genoma by PCR in the cerebrospinal fluid (CSF), and therefore received a diagnosis of HSV encephalitis. The controls were the patients who attended to the emergency unit of the main hospital (Grenoble) between January and December 2013 with a febrile, acute neurologic impairment but with a negative PCR for HSV in CSF. Neck stiffness was not considered as a neurologic impairment. The initial elements (medical records, clinical history, C-reactive protein) were recorded and the two groups were compared.

Results

Thirty-six cases of HSV encephalitis and 103 cases were included (mean age, respectively 61+/-12 years and 61+/-15 years). In univariate analysis, patients with HSV encephalitis had less frequently preexistent neurologic abnormalities ($p<0.001$), and had more frequently seizures ($p<0.001$), a normal coma Glasgow score ($p<0.001$), a C-reactive protein below 10mg/L ($p<0.001$), vomiting ($p=0.015$), and a systolic blood pressure above 140mmHg ($p=0.042$). In multivariate analysis, the factors independently associated with a diagnosis of HSV encephalitis were a CRP<10mg/L (OR=10 [3-33], seizures (OR=8.09 [2.73_23.94]), no preexistent neurologic abnormalities (OR=6.25 [2.22-16.7]), and a systolic blood pressure above 140mmHg (OR=5.11 [1.77-14.77]). A predictive score was elaborated with these 4 items, with a ponderation of either 0 vs 2 (seizures, CRP) or 0 vs 1 (preexistent neurologic abnormalities, blood pressure). With the hypothesis of a prevalence of HSV encephalitis of 5% among patients with an acute, febrile neurologic impairment, a value of the score of 0, 3, 4, 5 and 6 would be associated with a HSV encephalitis probability of respectively 0.01%, 4%, 22%, 32% and 71%.

Conclusion

Seizures, blood pressure above 140mmHg, CRP<10mg/l and lack of previous neurological impairment are evocative of a diagnosis of HSV encephalitis in patients with acute, febrile neurological impairment. A prospective study is warranted to validate the derived score.