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Surveillance of West Nile virus infection after the 2012 outbreak

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Objective: During 2012, Tunisia knew its third large outbreak of West Nile Virus infection (WNVI) with86 cases of neuroinvasive diseases. As Tunisia is a crossroads for bird migration, especially the center of the country, closer surveillance of WNVI was established in this region. Testing for specific antibodies of WNV in serum and/or cerebrospinal fluid (CSF) was introduced in all suspected cases with central nerve system (CNS) diseases. The aim of this study is to report laboratory findings of one-year surveillance of WNVI with CNS disorders, in our region.

Methods: This is a prospective report of all suspected cases of WNVI picked in the 2 university Hospitals of Monastir and Mahdia (Center of Tunisia), from 1stJanuary until middle December 2013. A suspected case of WNVI, was defined by the presence of unexplained fever illness and/or neurological diseases. Both specific immunoglobulin M (IgM) and G (IgG) antibodies were tested in sera and-or CSF of all suspected cases. It was confirmed a case subject by the presence of both virus specific IgG and IgM antibody using an antibody-capture immunoassay (EUROIMMUN, Germany).As Tunisia is not an endemic area of other Flavivirus, it was estimated that neutralization tests were not required.

Results: Of 67suspected cases, 13(19.4%) were confirmed as WNVI by the detection of both IgM and IgG antibodies. The mean age was 34 year and the sex ratio was 1.2 and all positive patients were resident in the area of Mahdia. The first case was picked in 25th of February, and79% of cases had onset of illness between October and November. Among the 67 cases, isolated IgG were found in 5 (7.4%) sera showing an old contact with WNV and isolated IgM in 10 sera (15%) suggesting an early infection. Serological results were delivered within 9 days after the onset of symptoms and within 4 days after hospitalization. Ten patients over the 13 positive cases, had neuroinvasive diseases with one acute flaccid paralysis, 3 meningitis, and 6 meningoencephalitis. All the patients evolved uneventfully.

Conclusion: For the first time, significant number of neuroinvasive WNVI was detected two years consecutively in Tunisia. The first case was picked 5 months earlier than the last year outbreak. These findings indicate an endemic level of WNV transmission the area of Mahdia and may be an important clinical and public health problem for the years to come. They also highlight the need to increase efforts to control mosquito population and to systemize WNV testing in routine diagnostic practice throughout the country.

Biography

Salma Mhalla is a medical assistant studying at Monastir's faculty of medicine. She has a master's degree in microbiology on the theme of molecular epidemiology of hepatitis C, which was published in an international journal. She is now pursuing a master on pedagogy in order to become the first professor assistant in Virology in this faculty.

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