

WEST NILE FEVER IN A PATIENT IN ROMANIA, AUGUST 2008: CASE REPORT

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On 25 August 2008, the National Institute of Research Development for Microbiology and Immunology (the "Cantacuzino" Institute) in Bucharest, Romania reported the detection of IgM antibodies against West Nile virus in the serum of a male patient in his mid forties, from Braila town (Braila county, south eastern part of Romania).

Case report

Clinical data

On 3 August 2008 the patient fell ill with fever between 38° and 39°C, severe headache, macula-papular exanthema, vomiting, diarrhea, ocular aches. His symptoms worsened and five days later he was admitted to the infectious disease section of the local hospital with moderate clinical symptoms of meningitis. A possible rickettsiosis was diagnosed and he received doxycycline and symptomatic treatment. The patient fully recovered and was discharged on 15 August. Patient history revealed that he had gone fishing two weeks before the onset of disease, in Gropeni village in Braila county, on the shores of the Danube river where IgG against West Nile virus had been detected in horses in 2007.

Laboratory findings

Cerebrospinal fluid (CSF) sampled at time of admission was clear, the cell count was 20 per mm³ with 100% lymphocytes. Leptospirosis was considered as differential diagnosis but the slide agglutination test was negative. Samples were sent to "Cantacuzino" Institute on 18 August for further testing for *Rickettsia conorii*, however, the immunofluorescence test was negative. Although the samples had been sent only for the diagnosis of a rickettsial disease, they were also tested for antibodies against West Nile virus, according to the requirements of surveillance system for West Nile fever [1]. IgM antibodies against West Nile virus in the patient's serum were detected on 25 August, the positive result of the CSF sampled at the time of hospital admission was obtained on 3 September. The case was thus confirmed according to the European Centre for Disease Prevention and Control (ECDC) case definition.

Epidemiological investigations

The local public health authority (PHA) of Braila sampled mosquitoes in the village where the patient had been fishing. The samples sent on 4 September to the "Cantacuzino" Institute tested negative.

Epidemiologists checked the consultation registry at the infectious disease hospital in Braila and at the general practitioner (GP) clinic in the village where the patient had been fishing, searching for patients presenting with the symptoms "fever and exanthema" between 15 July and 26 August. This led to the detection of a female patient who had been hospitalised at the infectious disease centre on 20 August and reported to the Centre for Prevention and Control of Communicable Diseases, Public Health Institute of Bucharest on 2 September. Her blood was tested for antibodies against West Nile virus and *R. conorii*. The test results were negative for IgM antibodies.

Information about the mortality in birds and horses in the area as well as results from surveillance for the presence of West Nile virus in birds and animals, performed in 2008, was requested from the local (Braila Sanitary-Veterinary Direction - SVD) and the national veterinary authorities (National Sanitary-Veterinary Authority and Food Safety) and the Diagnostic Institute for Animal Health. All veterinary institutions were also notified about the human case.

Immediate control measures on local level

Doctors at the infectious disease hospital in Braila and the village GP were informed about the case and asked to perform serum investigation for West Nile virus in patients presenting with fever associated with exanthema, without a known cause.

The administrative authorities of the two localities were also notified about the case, as they are responsible for specific control measures against mosquitoes.

Health education campaigns for the general population included messages about informing a physician in case of sickness (fever and rash) and taking protective measures (clothing, repellents) for mosquito bites and sanitary measures in and around their living space.

Risk assessment and implications for the future

A risk analysis of the current situation performed by the specialists of the Centre for Prevention and Control of Communicable Diseases (CPCCD) on 1 September concluded that Braila county is one of the counties in Romania with a risk for the occurrence of West Nile virus. Climatic conditions, temperature, humidity (rain, soil humidity, natural water reservoirs such as Danube delta) and the presence of migratory and indigenous wild birds and horses favour

the existence and multiplication of the *Culex* spp. mosquitoes. Considering this and the recent detection of a human case of West Nile virus infection several measures were proposed by the CPCCD specialists:

- In the area of Gropeni which is currently the only remaining area at risk, regular surveillance of the mosquito population will continue and samples will be sent for analysis to “Cantacuzino” Institute.
- A serum survey in the human population is needed in order to identify the infection among the population of the Gropeni area.
- The County Haematological Centres are not equipped to detect the West Nile virus in donated blood, therefore a temporary suspension for blood donation from people of the village of Gropeni was recommended until the end of October 2008.
- A decision to prolong this period/ to extend temporary suspension of blood donation might be taken on the basis of monitoring climatic conditions and mosquito population from Gropeni area.
- Serum testing of random samples from the serum deposits of the Braila Haematological Centre from blood donated in August should be undertaken to collect additional information regarding the current situation.

West Nile virus surveillance in Romania

The vector for West Nile virus present in Romania is *Culex* spp. (*molestus* / *pipiens*), which is active from May to October each year. Since 1997, active surveillance for West Nile virus in humans, has been performed between the months of May and October in all counties along the river Danube, including Bucharest. Furthermore, surveillance is ongoing in wild birds and horses. Humans with clinical symptoms of meningitis and clear CSF are tested for the presence of IgM antibodies against West Nile virus. Suspected and positive cases are mandatorily notifiable.[1] From the start of active surveillance in the current season only six probable meningitis cases with clear CSF have been reported, however, all were negative for West Nile virus antibodies. No systematic serosurveys have been undertaken neither from patients presenting with what might have been atypical symptoms of West Nile fever, nor from the general population in Braila county. No systematic surveillance exists regarding the presence of West Nile virus in mosquitoes.

Results from Braila county

In the last ten years there were two confirmed human cases with West Nile fever symptoms in the county of Braila, one in 1997 and the other in 2001. In both cases the examination of the CSF showed clear liquor and signs of meningitis.

Serology studies undertaken in 2007 in horses demonstrated the presence of West Nile virus infection (unpublished data, communication by SVD Braila). Braila county was among the counties included in the studies. Serum samples were taken from horses in five towns, two of them neighboring Gropeni village where the patient had gone fishing. Out of 23 serum samples taken, 13 were positive showing IgG antibodies against the West Nile virus (unpublished data). According to experts of the Braila SVD bird mortality in 2007 was not higher compared to past years.

Conclusion

Three cases of West Nile virus infection detected in Braila county in the past decade together with animal data demonstrate that there is a risk of infection in humans resulting from mosquito

bites in this area. In the current case the probability that the patient had acquired the infection in the town where he resided was considered to be low because there mosquito control measures had been carried out twice in 2008. Therefore he was thought to have been infected while fishing in an area where there is a high density of mosquitoes and measures for mosquito extermination are not practised. This highlights the need for systematic vector control measures in the affected area and for education of the population regarding the necessary mechanical (such as long sleeved shirts and pants) and/or chemical protection (repellents) while fishing or pursuing other recreational or occupational activities.

Acknowledgements

We would like to thank the experts from Public Health Authority of Braila county and the experts from “Cantacuzino” National Institute for Research-Development for Microbiology and Immunology, Bucharest, Romania.

References

1. .Methodology of West Nile virus surveillance [in Romanian]. Available from: <http://cpcbt.ispb.ro/document.php?doc=210>

This article was published on 25 September 2008 .

Citation style for this article: Popovici F, Sarbu A, Nicolae O, Pistol A, Cucuiu R, Stolica B, Furtunescu F, Manuc M, Popa MI. West Nile fever in a patient in Romania, August 2008: case report. Euro Surveill. 2008;13(39):pii=18989. Available online: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=18989>