Detection of West Nile virus infection in horses, Italy, September 2008

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Six confirmed and five suspected cases of West Nile virus infection in horses have been reported in the vicinity of Ferrara in Italy. To verify the diffusion of viral circulation and to prevent the spread of disease, the regional authorities of Emilia-Romagna adopted a special plan of West Nile fever surveillance.

Detection of cases

As of 22 September 2008, 12 horses with neurological symptoms indicating the possibility of West Nile virus infection have been reported. The notifications were made in accordance with the already existing national surveillance of West Nile disease. In six of these cases the diagnosis was confirmed by laboratory analysis performed at the national reference centre (Centro di Referenza Nazionale per le Malattie Esotiche – CESME), for five the initial ELISA test was positive but the confirmation is still pending, and one tested negative.

The infected horses belong to eight different stables, seven in the province of Ferrara and one in the province of Bologna at the border with Ferrara. There are about 220 horses kept in these stables and all are to be tested for West Nile virus infection. The blood sampling and laboratory testing is currently ongoing.

West Nile virus has also been recently detected in wild birds in the area. Although no anomalous mortality has been signalled, surveillance of wild birds conducted between 19 August and 14 September in the framework of a general monitoring of the regional wild fauna resulted in detection of West Nile virus in six crows and seven magpies, all from the province of Ferrara.

To date there have been no human cases of West Nile fever reported in Italy. Active surveillance of cases of meningoencephalitis (with clear cerebrospinal fluid [CSF]) was started on 16 September and is ongoing. So far one suspected case was notified in a patient resident in the province of Bologna near the border with Ferrara. However, the results of laboratory analysis are still pending.

Control measures

The public health authorities in Emilia-Romagna are closely monitoring the situation and adapting the action plan to the evolving epidemiological situation. Currently, the following measures are in place or planned:

Veterinary surveillance

The veterinary surveillance which started on 15 September comprises passive surveillance (until 31 October) and active surveillance (until 31 December) of cases of West Nile fever in horses. It is also foreseen that samples collected from cattle in the region as part of sentinel surveillance for bluetonque disease will be tested for West Nile virus. Furthermore, a national plan for surveillance of wild birds (other than corvids) is under preparation.

Human surveillance

The surveillance of human cases ongoing since 15 September includes rapid detection and reporting of cases with neurological symptoms compatible with of West Nile disease (until 31 October), as well as active surveillance among employees of stables where cases of infection in horses have occurred, to promote the awareness on this disease, preventive measures and early detection of West Nile fever.

The case definition used includes patients >= 15 years old, with fever >= 38.5ºC and neurological symptoms: encephalitis, meningitis or Guillain-Barré syndrome or acute flaccid paralysis. Cases are classified as:

a) possible: clinical symptoms and clear CSF;
b) probable: clinical symptoms and at least one of the following laboratory criteria: presence of IgM antibodies against West Nile by ELISA; seroconversion by ELISA; fourfold increase of IgG antibodies against West Nile in two consecutive (>5 days, preferably 15-20 days) samplings by ELISA;
c) confirmed: clinical symptoms and at least one of the following laboratory criteria: isolation of West Nile virus in blood or CSF; presence of IgM antibodies in CSF (by ELISA); detection of nucleid acid specific for West Nile virus by RT PCR in blood or CSF; detection of increased levels of IgM and IgG antibodies against West Nile by ELISA confirmed by neutralisation testing.

At the moment, considering the surveillance measures adopted, as well as the example of other countries especially France [1], the Italian authorities decided not to introduce any restrictions on blood donations. However, the situation is monitored closely and should a human case be confirmed, this decision will be reconsidered.

Vector surveillance and control

In addition to surveillance, vector control measures are being implemented in the area affected, i.e. the province of Ferrara and the border zones of the provinces of Ravenna, Bologna and Modena. In these areas samples of mosquitoes (Culex spp. and Aedes spp.) are being collected; 10,000 catchments divided into pools are going to be analysed (by PCR). In addition to larvicide disinfestations in every potential breeding site, adulticide interventions are planned to be undertaken in every urban areas and on the occasion of open-air public gatherings, e.g. fairs and festivals, especially held outside the urban centres and in the vicinity of water reservoirs.

Conclusion

This event illustrates the necessity of a coordinated strategy plan combining surveillance in domestic animals, wild fauna and in humans for assessing the magnitude of the outbreak and for an efficient management.

References

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This article was published on 25 September 2008 .

Citation style for this article: Macini P, Squintani G, Finarelli AC, Angelini P, Martini E, Tamba M, Dottori M, Bellini R, Santi A, Loli Piccolomini L, Po C. Detection of West Nile virus infection in horses, Italy, September 2008. Euro Surveill. 2008;13(39):pii=18990. Available online: http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=18990