WEST NILE DISEASE (WND) IN SICILY

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BACKGROUND

WND is an emerging vector-borne zoonosis caused by an RNA virus included in the Japanese encephalitis group within the *Flavivirus* genus (3, 5). The virus is reported in several countries of the Mediterranean Basin (Fig. 2) and is maintained in nature by cycling through birds and mosquitoes (Fig. 1). In Italy, after the first appearance in Tuscany in 1998 (1), West Nile Virus (WNV) has been continuously circulating since 2008. A National Surveillance Program consisting of monitoring horses, "sentinel poultries", wild bird mortality and mosquitoes is active in the entire national territory since 2002 (4). Authors describe the outbreaks which occurred in Sicily in 2010 and 2011 (Fig. 3). Case study: Between September-October 2010, seven horses from the western part of the island, in the Trapani province, showed neurological symptoms (2). In October 2011, another two horses suffering from neurological disorders, were observed around Messina, in the eastern part of the island, and near Palermo, in the north west of Sicily.

METHODS

According to the surveillance plan, horse and rural poultry serum and blood samples were collected in a 4 Km area around the clinical cases or seroconversions. Larvae and adult mosquitoes were monitored as well as wild bird mortality. IgM and IgG ELISAs and neutralization assays were performed on serum samples. Tissue, blood and mosquito samples were instead tested for the presence of the WNV RNA by real time RT-PCR.

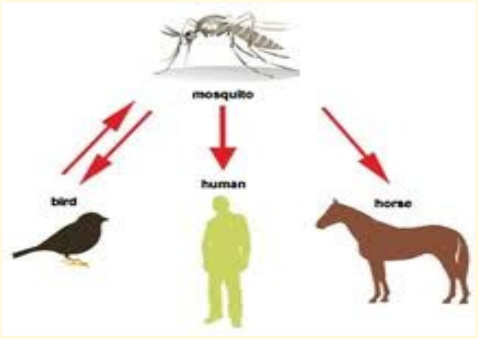

Figure 1. West Nile Virus transmission cycle

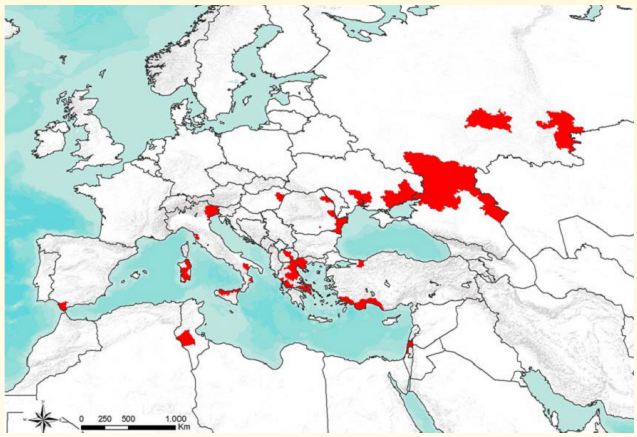

Figure 2. West Nile Disease in the Mediterranean Basin (2011)

RESULTS

In 2010 WNV infection spread in an area of 32.7 Km radius around the first case. Forty six horse stables. had at least one animal showing clinical signs or specific IgM and/or seroconversion. In 2011, WNV circulation was proven in further 6 horse farms confined in an area of 6 Km radius around Messina. A WNV strain belonging to *lineage 1* was detected in the brain tissue of the dead horse and in a mosquito pool collected during the epidemic. Near Palermo, the virus infected 12 farms distributed in an area of 15 Km radius.

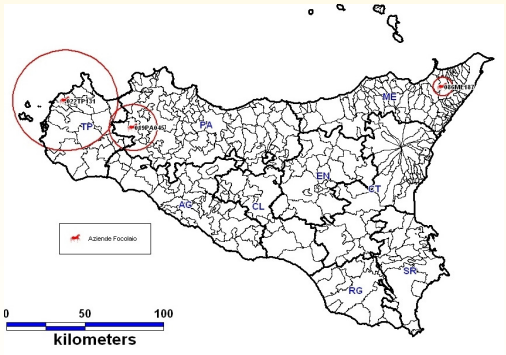

Figure 3. 2010-2011 WND outbreaks in Sicily

CONCLUSION

More studies are needed to better understand the diffusion routes and dynamics of these outbreaks and better know different elements of their complex biological cycle. It then will be possible to design more efficient surveillance, control and prevention activities with great benefit for human and veterinary public health.

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