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Abstract (oral session)

Surveillance of West Nile virus in Veneto Region, Italy, 2011

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Objectives: The first human cases of West Nile virus (WNV) disease occurred in Italy in 2008, in north-eastern regions. Several human cases have been reported each year since then, suggesting that the virus has become endemic in north-eastern Italy **Methods:** Enhanced surveillance of WNV infection by investigation of all suspected cases of WN neuroinvasive disease (WNND) and West Nile fever. **Results:** In 2011, for the fourth consecutive year, 14 confirmed human cases of WNV infection were notified in Italy, including 8 cases which were identified in Veneto Region (7 cases of WNND and 1 cases of fever). Since 2008, a trend to involvement of northern areas in Veneto Region was observed, and, in 2011, most cases were identified in areas that were not affected in the previous years. WNV NAT screening of blood, tissue, and organ donation identified four WNV RNA-positive blood donors and one WNV RNA-positive organ donor, who were resident in the same areas where symptomatic human cases were identified. A WNV-positive organ donor was missed by NAT testing and transmitted infection to three out of five recipients, two of whom (the kidney recipients) developed WNND and excreted WNV RNA in their urine. Rapid detection of these cases allowed prevention of further transmissions to other tissue recipients. Following this experience, we monitored WNV RNA in the urine of WNV NAT-positive blood donors. In these subjects, WNV RNA remained positive in urine long after becoming undetectable in peripheral blood. Whole genome sequencing of two human WNV strains isolated in Veneto Region in 2011 demonstrated that they were WNV lineage 1, clade 1a, and phylogenetically related to WNV strains circulating in Italy and in the Western Mediterranean basin in the previous years. About 1% divergence was observed between the genome of the WNV strains isolated in 2011 and the strain isolated in 2009 in Veneto Region. **Conclusions:** For the fourth consecutive year, in 2011, human cases of WNV disease occurred in Veneto Region. In affected regions, WNV NAT screening of blood and organ donations detected a relatively high rate of positive cases. WNV RNA detection in urine represented a sensitive test. Genetic comparison of WNV strains isolated in Italy in the recent years indicated that the virus might have been re-introduced by migratory birds several times and than it might have circulated and evolved.