Update on West Nile virus in Italy

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Dear Sir,

We recently published in Blood Transfusion a review on West Nile virus (WNV) with a special focus on its circulation in Italy in 2008-2012[1]. With the present letter we would like to update these data by including information from the 2013 season.

As in the past, the preventive measures implemented by the National Blood Center (NBC) from July 1st to November 30th, 2013 (screening by WNV Nucleic acid Amplification techniques [NAT] of blood donors and 28-day deferral) were applied based on the previous year's risk assessment of WNV transmission by transfusion of blood and blood components. The first areas to be concerned were, therefore, the ones affected by WNV in the 2012 season: the provinces of Treviso and Venice (Veneto region), the province of Matera (Basilicata region) and all the provinces of the regions of Friuli-Venezia-Giulia and Sardinia.

Due to an intensive circulation of mosquitoes infected with WNV (as demonstrated by WNV-RNA-positive pools of mosquitoes) reported between July and September 2013 in several provinces of the Emilia-Romagna region (Bologna, Modena, Ferrara, Parma, Piacenza and Reggio Emilia), the above-mentioned WNV preventive measures were implemented. The implementation was not triggered by the National Blood Centre's definition of an "affected area", i.e. an area in which a human case of West Nile virus neuro-invasive disease (WNND) and/or a WNV-NAT positive donor are confirmed, but by the 2013 regional plan for the surveillance of arboviruses. Overall, 20 cases of WNND were reported in 2013 in this region (Table I) thus confirming the entomological data. In addition, 16 cases of West Nile fever were observed.

Between the end of September and the beginning of October 2013, WNV-infected mosquitoes were reported in the province of Cremona (Lombardy region). Consequently, the same preventive measures were exceptionally implemented also in this province. Meanwhile, ten cases of WNND in humans were reported in the provinces of Brescia, Lodi, Mantua and in the city of Melegnano, all in the region of Lombardy, thus triggering the implementation of the WNV preventive measures. Unexpectedly, one WNND case was reported in September 2013 in the province of Foggia (Apulia region) in which, consequently, WNV preventive measures were introduced.

With respect to the Veneto region, in addition to the expected WNV cases reported between August and the beginning of October 2013 in the provinces of Treviso and Venice, WNND cases were reported in the same period in other provinces of the Veneto region (Rovigo, Padua and Verona) triggering the implementation of the preventive measures. Overall, 14 cases of West Nile fever and 13 cases of WNND were reported in 2013 in this region. Unexpectedly, no WNV cases were reported in the regions of Basilicata, Friuli-Venezia-Giulia and Sardinia in 2013.

Overall, 284,564 blood donations were tested in 2013 for WNV by either a real-time polymerase chain

Table I - Circulation of WNV in Italy in 2013.

	2013		
Italian region	**N. of WNND cases***	**N. of blood donations tested for WNV RNA**	**N. of positive donations**
Apulia	1	5,393	0
Basilicata	0	5,145	0
Emilia Romagna	20	74,242	12
Friuli	0	38,090	0
Lombardy	10	35,300	0
Sardinia	0	34,648	0
Veneto	13	91,746	7
Total	44	284,564	19

*Only cases that were confirmed according to the ECDC criteria.

reaction (Roche Molecular Systems, Branchburg, USA) or a Transcodificazione Amplification (TMA) assay (Grifols, formerly Novartis Vaccines & Diagnostics, Inc., Emeryville, CA, USA), with 19 of them (0.006%) being found positive for the viral RNA (Table I). No cases of WNV transmission by blood were reported to the NBC. Plasma from the first blood donation of 16/19 WNV-RNA positive donors (12 from the Emilia Romagna region and four from the Veneto region) was subjected to further analysis, i.e. determination of the presence of WNV IgM/IgG and viral load. Five donors (31%) were positive for either IgM or both antibodies while the remaining 11 (69%) tested negative for both antibodies. The mean plasma viral load of the 16 donors was about 2.3×10^3 copies/mL (SD 3.3×10^3 copies/mL; range, 50-2.0×10^4 copies/mL).

It should be pointed out that the absence of specific anti-WNV protective antibodies in the 11/16 WNV-RNA positive donors made their donations highly infectious. In this respect, it is worth mentioning that most positive donations were whole blood donations, each systematically fractionated into three different blood components (red cells, buffy coats/platelets and plasma). Therefore, by screening donors for WNV, a considerable number of blood recipients were spared exposure to these potentially infectious units.

The overall WNV risk was estimated at about 0.8/10,000 donations by applying the formula developed by Biggerstaff and Petersen[2], which takes into consideration a number of assumptions as well as different parameters such as the duration of the outbreak and the incidence, the latter estimated at 0.65/100,000 based on the 44 human cases of WNND that occurred in the four Italian regions. In this respect, it should be pointed out that taking into consideration the 206,681 donations tested in the WNND-concerned provinces, the theoretical number of positive donations according to Biggerstaff and Petersen is 16.4 while the actual number of positive donations was quite close, i.e. 19.

Based on all the above, the 2013 experience with WNV circulation in Italy once again highlights the importance of having rigorous entomological and veterinary surveillance plans in place and of establishing close cooperation among the different players in the health field.

The Authors declare no conflicts of interest.

References

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