

P0052 A study of *Flavivirus* infection in Tunisian blood donors

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Background: Viruses belonging to the flavivirus genus are transmitted by arthropod vectors. Among the vector-borne flaviviruses, West Nile virus (WNV), Tick-Borne Encephalitis virus (TBEv) and USUTU virus (USUV) constitute the most frequently observed pathogens with significant public health impact in endemic regions throughout the globe and their transmission from asymptomatic donors has been reported during blood transfusions. In order to investigate the current and the past activity of flaviviruses in Tunisia, a seroprevalence study was performed among volunteer blood donors.

Materials/methods: To determine the presence of WNV, TBEv and USUV antibodies, this study involved 404 blood donors recruited in blood bank of Farhat Hached university hospital, Sousse-Tunisia, during the period from 1 August to 15 October 2017. All blood donations were examined for IgG and IgM antibodies against each of the viruses previously indicated, using the ELISA method. IgG or IgM positive blood donor sera for at least one of the above viruses were tested for the presence of flaviviruses RNA by RT-PCR assay. All data were statistically analyzed using the Chi-square test.

Results: Of the 404 donors, 2 were positive for WNV specific IgM antibodies at the time of donation. Among tested serum, no flaviviruses RNA-positive samples were detected. The percentage of seropositivity of IgG antibodies at donation was 8.2% (33/404) for WNV, 0.7% (3/404) for TBEv and 5% (20/404) for USUV. The cross reaction between WNV and USUV was observed in 17 cases (4.2%). However, 16 samples (4%) reactive against WNV only and 3 samples (0.8%) for USUV only. The seroneutralization tests are in progress. The flaviviruses seroprevalence was significantly higher from donors coming from rural areas compared to the others ($p < 0.001$). No significant association of IgG reactivity with some risk factors (age, sex, travelling) was observed.

Conclusions: This study revealed a high percentage of detection of IgG WNV in blood donor sera, which draws attention for urban areas where flaviviruses circulate and adapted to transmission by mosquitoes. Thus, a screening strategy can be implemented after a large-scale study and financial considerations, like seasonal screening of flaviviruses for blood donors.