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PREVALENCE AND MOLECULAR EPIDEMIOLOGY OF EMERGING AND RE-EMERGING ARBOVIRAL INFECTIONS IN CROATIA, 2017

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Summary

In last two decades, number of emerging and re-emerging viral zoonoses has increased. In Croatia, autochthonous infections caused by tick-borne encephalitis (TBEV), West Nile (WNV), Usutu (USUV) and Toscana virus (TOSV) were reported. Serologic evidence of Tahyna virus (TAHV) was documented in 1980s. Sporadic imported dengue (DENV), chikungunya (CHIKV) and Zika virus (ZIKV) infections were continuously notified in travelers. During 2017, a total of 90 patients with neuroinvasive infection (meningitis/encephalitis), 172 asymptomatic persons, 560 horses and 1580 poultry were tested for the presence of neuroinvasive arboviruses. In addition, 72 travelers were tested for the presence of DENV, CHIKV and ZIKV antibodies. Neuroinvasive arboviral disease was confirmed in 18/21.1% patients: TBEV in 11/12.2% and WNV infection in 8/8.8% patients. Phylogenetic analysis showed circulation of WNV lineage 2. USUV, TOSV and TAHV infection was not detected. In asymptomatic persons, TBEV IgG antibodies were detected in 3/1.7% participants, WNV in 4/2.3% and TOSV in 4/2.3% participants. In two participants recent TBEV and WNV infection was confirmed by detection of borderline/low IgG avidity. Seroepidemiological survey in sentinel animals showed WNV IgG seropositivity in 165/10.4% poultry and 69/12.3% horses and TBEV IgG seropositivity in 80/14.3% horses. Imported arboviral infection (DENV, CHIKV, ZIKV) was reported in four travellers returning from areas with documented arbovirus circulation. Detection of emerging and re-emerging arboviruses in humans and sentinel animals in Croatia highlight the need of continuous multidisciplinary surveillance in accordance with "One health" approach.

Keywords: emerging arboviral infections, epidemiology, Croatia