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VI4 PREVALENCE OF TICK-BORNE ENCEPHALITIS IN ENDEMIC REGIONS OF THE CROATIAN MAINLAND, 2017

M. Bogdanić¹; Arbovirus study group: T. Avšič-Županc^{1,3}, A. Babić-Erceg¹, Lj. Barbić¹, K. Capak¹, L. Jemeršić¹, A. Jungić¹, B. Kaić¹, A. Klobučar¹, B. Kolarić¹, S. Krčmar¹, J. Madić¹, B. Miklaušić¹, D. Ovčar², N. Pandak¹, Lj. Perić¹, T. Potočnik-Hunjadi¹, J. Prpić¹, D. Sabadić², V. Savić¹, V. Stevanović¹, I. Tabain¹, I. Toplak^{1,4}, S. Zember¹, T. Vilibić-Čavlek¹

Arbovirus study group; ¹Collaborators on the project Croatian Science Foundation: IP-2016-06-7456: "Prevalence and molecular epidemiology of emerging and re-emerging neuroinvasive arboviral infections in Croatia" (CRONEUROARBO); ²Collaborators of the Reference Center for Diagnosis and Surveillance of Viral Zoonoses Croatian Ministry of Health; Croatian Institute of Public Health, Zagreb, Croatia; ³Institute of Microbiology and Immunology, Medical Faculty University of Ljubljana, Slovenia; ⁴Veterinary Faculty University of Ljubljana, Slovenia

INTRODUCTION: Tick-borne encephalitis virus (TBEV) is the most important re-emerging arthropod-borne virus in Europe and Asia. In recent decades, the number of human cases in endemic regions of Europe has increased, endemic areas have spread to higher altitudes and new foci have emerged. The main vectors of TBEV in Europe are ticks *Ixodes ricinus*. Several studies showed that virus detection in ticks is not a sensitive indicator for risk assessment of human TBEV infection. Various animals have been used as sentinels in TBEV endemic areas, including horses in which asymptomatic TBEV is common with seroprevalence rates of up to 26%.

OBJECTIVES: To analyze the prevalence of TBEV in humans and horses in endemic regions of the Croatian mainland.

MATERIAL: From January to December 2017, a total of 90 patients with neuroinvasive disease (meningitis/encephalitis), 172 asymptomatic persons and 560 horses were tested for the presence of TBEV RNA and/or TBEV antibodies.

METHODS: TBEV IgM/IgG antibodies in human and horse sera were detected using a commercial ELISA. TBEV RNA was detected using a real-time and nested RT-PCR protocol.

RESULTS AND CONCLUSION: TBEV infection was confirmed in 11/90 (12.2%) patients with neuroinvasive disease (8 males and 3 females aged 21-68 years) by detection of TBEV IgM and low avidity IgG antibodies. TBEV RNA was detected in one patient. The majority of patients reported risk factors such as frequent visiting forest areas (7/63.6%), rural area of residence (7/63.6%) or frequent tick bites (6/54.5%). Cases showed seasonal distribution (April-November). Four (2.3%) asymptomatic persons were found to be IgG seropositive. In one participant, recent TBEV infection was documented by borderline IgG avidity. TBEV IgG antibodies were detected in 80/560 (14.3%) sentinel horses. Our results highlight the need of multidisciplinary ("One health") surveillance of this re-emerging arboviral zoonosis.