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Abstract (poster session)

Investigation of West Nile virus, tick-borne encephalitis virus and Toscana virus in a cohort of patients with central nervous system infection and/or febrile diseases: ongoing activity of Toscana virus genotype A strains in central Anatolia, Turkey

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Objectives: A significant portion of febrile diseases and central nervous system (CNS) infections are due to arthropod-borne viruses in endemic regions and West Nile virus (WNV), Tick-borne encephalitis virus (TBEV) and Toscana virus (TOSV) are frequently-observed agents in Western Asia, Europe and around Mediterranean where the activity of vectors are present. Evidence of TBEV and WNV activity in Turkey has been identified previously in serosurveillance studies and reports of acute WNV cases have announced since 2009. Exposure to TOSV and acute cases of TOSV meningoencephalitis have initially been identified from Central Anatolia in 2009. In this study, WNV, TBEV and TOSV-associated clinical diseases were investigated at a tertiary care hospital in Ankara province, Central Anatolia, Turkey where cases associated with WNV and phleboviruses have previously been reported. Methods: Between June-September 2012, 15 serum-cerebrospinal fluid (CSF) pairs and 6 single sera were collected from 21 patients with the preliminary diagnosis of febrile disease or aseptic meningoencephalitis of presumed viral etiology. Bacterial and fungal agents as well as herpes virus types 1/2 were ruled out via appropriate assays. In all samples, WNV, TBEV and TOSV IgM and IgG testing were performed via commercial assays. Samples were evaluated for viral RNAs using a WNV-specific nested Polymerase Chain Reaction (PCR), a pan-flavivirus nested PCR and a pan-phlebovirus nested PCR as described previously. Amplicons were sequenced for phylogenetic analysis and strain characterization. Results: All samples were negative for WNV/TBEV immunoglobulins, WNV-specific and panflavivirus PCRs. TOSV IgG was detected in 4 (4/21,19.1%) patient's sera, suggesting previous exposure. In a 23 year-old female presenting with febrile disease, pan-phlebovirus PCR revealed positive results in serum, with negative TOSV immunoglobulins. Nucleotide sequence of the amplicons was characterized as TOSV and phylogenetically grouped with genotype A strains. A follow-up serum collected after 4 days was observed as reactive for TOSV IgM but negative for RNA. The patient was discharged 8 days after admission without residual sequelae. Conclusion: This is the first report of acute TOSV infections from Turkey since 2009 and current findings demonstrate ongoing activity and confirm virus genotype in circulation at Ankara province, Central Anatolia, Turkey.