P 37 Comparative evaluation of immune response in patients vaccinated with "Encepur® Adult" vaccine against different strains of Siberian and Far-East subtypes of tick-borne encephalitis virus (TBEV)

G.N. Leonova, E.V. Pavlenko, O.S. Maystrovskaya, S.I. Belikov, I.G. Kondratov, E.V. Chausov, E.V. Protopopova, V.A. Ternovoi, V.B. Loktev

Research Institute of Epidemiology and Microbiology, Siberian Branch of Russian Academy of Medical Sciences, Vladivostok, Russia

In Russia, the following vaccines are certified and widely used: "FSME-IMMUN inject" (Austria), "Encepur® Adult" (Germany), and 2 local vaccines – the TBE vaccine manufactured by the Research Institute of Poliomyelitis and Viral Encephalitis named after M. Chumakov (Moscow, Russia) and "EnceVir" manufactured by the Scientific Production Association MicroGen (Tomsk, Russia) (M.S. Vorobyova, 2007). The Austrian vaccine is prepared from the Neudoerfl strain of TBE virus and the German vaccine contains the K23 strain (Western TBEV subtype). Russian vaccines are prepared from highly pathogenic Far-Eastern strains of TBEV – Sofjin and 205 strains. As proven in earlier research, antibodies to protein E are similar that predetermines a reliable protection against every strain of TBEV in all vaccines (H. Holzmann, 1992). Vaccine "Encepur® Adult" (Germany) is at an advantage due to its being free from foreign proteins. Another preference of "Encepur®" is that the vaccine contains strictly defined and allegoristic quantity of specific antigen in each syringe dose (1.5 mcg for "Encepur® Adult" and 0.75 mcg for "Encepur® Children". That allows conducting a more accurate comparison of the immune response in various strains of TBEV subtypes in patients vaccinated with "Encepur®".

In this research, we tested serum samples received from 25 patients immunized with "Encepur® Adult" vaccine. Serum testing was performed 1 month, and 3, 5, and 7 years after completed vaccination course. Indirect method of immunofluorescence analysis (IMIA), enzyme-linked immunosorbent assay (ELISA), and neutralization test in cell culture of embryo pig kidney epithelium (NT) were performed. We used the Kolarovo-2008 strain of TBEV isolated from *I. persulcatus* in 2008 in the Tomsk region, Russia, that was described as a strain of Siberian P-73 subtype (isolated from a deceased person in 1973 in the Primorye region, Russia, and defined as Far-East subtype). Comparative molecular-genetic and biological characteristics of the strains were performed. Our finding discovers that all ELISA-tested sera contained IgG antibodies. Irrespectively to immunity response time constraints, we identified virus-neutralizing antibodies to both TBEV subtypes. In several cases, an immunity response stress to Siberian strain was higher than to the Far-East strain of TBEV. Thereby, we primarily observed a marked immune protection against Siberian and Far-East TBEV subtypes in patients immunized with a vaccine containing the Western subtype of the virus.