VIROLOGIC AND SEROLOGIC INVESTIGATIONS OF WEST NILE VIRUS CIRCULATION IN BELARUS

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SUMMARY

In 1985-1994 virologic and serologic investigations were performed for the purposes of West Nile (WN) virus circulation establishment on the territory of Belarus. Blood-sucking mosquitoes, midges, wild small mammals, birds as well as blood and cerebrospinal samples from patients with nondifferentiated fevers and from healthy individuals were under studies. Four virus strains were isolated in Belarus for the first time, namely: 1 - from birds (48-WN Tremlya); 2 - from Aedes mosquitoes (319 and 2438); 1 - from a febrile patient (Win). Their antigenic and biological properties were examined in cell cultures and laboratory animals. The isolates turned to be identical with each other and closely related to reference Egypt strain Eg 101, that is a topotype for the African virus group. One more WN virus strain (8891) was isolated from Anopheles mosquitoes in 1999. Specific antibodies to the virus in human blood sera were identified by immunological and serologic assays in 1.7% of Belarusian population.
In Gomel and Brest Regions the percentage of seropositive individuals reached 5.8 and 15.4, respectively. WN virus antibodies prevailed in 0.6-5.8% of cattle, in 2.9-6.8% of wild small mammals and in 6.5-16.7% of birds. Thus, the conclusion was made on the existence of favourable conditions for the virus spread throughout the whole country and in the south in particular. Blood-sucking mosquitoes and birds are principle vectors in WN virus circulation in Belarus. 16 serologically confirmed cases of WN encephalitis were revealed in patients with fever of obscure etiology. In the view of the given data, reports on the reemergence of the pathogen in different countries and the tendency in global warming WN virus monitoring should become a subject of concern for Belarusian public medical care services.

Key words: West Nile virus, encephalitis, human, mosquitoes, birds, Belarus

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