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Study on the circulation of influenza A virus in swine populations in Kazakhstan

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Emergence of influenza virus A (H1N1)pdm in humans which is a complex reassortant of the swine-origin genotypes, emphasized the importance of worldwide surveillance for influenza virus in swine. 1293 biosamples (893 nasopharyngeal swabs and 400 blood serums) have been collected from swine in the small and large pig farms of the Almaty, Aktobe, Karaganda, Kostanay, Pavlodar and North-Kazakhstan oblasts in 2014-2015. Primary screening of 893 biosamples (nasopharyngeal swabs), carried out in RT-PCR using Amlisens PCR test system produced by the Central Research Institute for Epidemiology (Moscow) showed the presence of genetic material of the influenza virus in 171 samples (19.15% of the total number of examined samples). Influenza A/H1 virus RNA was detected in 111 samples (12.43%), A/H3 virus RNA in 10 samples (1.12%). These data indicate circulating influenza virus of mixed etiology in the swine population with a predominance of influenza A/H1 virus. As a result of primary infection of chicken embryos with 893 biosamples collected from swine in various regions of Kazakhstan, 22 infectious agents were isolated with the hemagglutination titers of 1:2-1:32 and infectious activity of 3.47-9.45 lgEID₅₀/0.2 ml. Identification in HAI and NAI assays of seven isolates from the Almaty (06/14 and 10/14), Karaganda (04/14 and 16/14) and Kostanay (12/14, 23/14 and 24/14) oblasts enabled to attribute them to influenza A virus with the H1N1 antigenic formula. Serological analysis of 400 blood serums collected from healthy and sick swine in the pig-breeding farms to detect antibodies against influenza A/H1N1 and A/H3N2 virus was carried out with IEA and HAI assay. The greatest number of specific antibodies was detected against the influenza virus subtype A/H1N1. Thereby, the findings confirm the circulation of influenza A/H1N1 virus in the swine population on the territory of Kazakhstan, which indicates the need for a permanent virological examination of swine with the aim of the earliest detection of the potential pandemic influenza virus strain.

Biography

Nailya Klivleyeva is presently working in Institute of Microbiology and Virology" CS MES, Republic of Kazakhstan.

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