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E0314 Animal reservoirs of hepatitis E virus in Belarus

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Background: Hepatitis E virus (HEV) is now considered to zoonotic diseases. In developed countries, where most cases of HEV infection are locally acquired, the importance of animal reservoirs has become clear. The prevalence of HEV in Belarus among animals is still unknown. This study was conducted to determine the incidence of HEV in rabbits, wild boars and domestic pigs of Belarus.

Materials/methods: Serum, bile and fecal samples of rabbits, domestic pigs and wild boars were collected during 2014-2017. For detection of HEV RNA in fecal samples we used nested reverse transcription PCR. Anti-HEV IgG were detected by commercial ELISA kit.

Results: During the study we have tested 150 fecal samples of rabbits, 40 fecal samples of domestic pigs, 24 fecal samples and 5 bile samples of wild boars for HEV RNA. HEV RNA was detected in 30 samples (20%) of rabbits and in 6 samples (15%) of pigs. HEV RNA was not detected in fecal samples and bile of wild boars. The positive rate for HEV-specific IgG was 25% (22/88) in rabbits, 29% (303/1047) in domestic pigs and 35.23% (31/88) in wild boars. Phylogenetic analysis showed that the isolates of HEV RNA from Belarusian rabbits form a single cluster with isolates obtained from rabbits in China, as well as isolates from rabbits in Moscow region (Russia) with high similarity of the nucleotide sequence (86%). The allocated cluster is independent, close, but not related to the HEV3.

Conclusions: In this research we have established high distribution of HEV markers in pigs, rabbits and wild boars. A small number of examined specimens and age can explain the absence of HEV RNA in wild boar samples. We indicated that rabbits, domestic pigs and wild boars are reservoirs of HEV in Belarus.