Hepatitis E virus infection in domestic swine in Belgium

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Hepatitis E virus (HEV) infection is hyperendemic in developing countries and endemic in developed countries. Many evidences claimed for a zoonotic transmission involving strains from genotypes 3 and 4. The main putative animal reservoirs for HEV in Western Europe are pigs, wild-boars and deers. This survey aimed to investigate HEV apparent seroprevalence in pigs in Belgium. In 2010, the Belgium pig population reached 6,321,055 individuals and HEV could represent a true hazard for the public health. Serum sampling (from an initial randomized sampling) was stratified according to regions and provinces and, within each province, a systematic sampling was realised to select pig farms (n=70). The sampling was performed in sows between September 2010 and October 2011; 6 sera were taken in each farm (n=420). HEV ELISA 4.0v, MP Biomedicals Asia Pacific Pte. Ltd., Singapore, was used and an apparent seroprevalence of 73% was obtained using the cut-off of the kit. Then, a ROC curve was created, adding true negative sera. Finally, randomly selected, positive pig sera (n=50) were tested by Western blotting (modified recomLine HEV IgG/IgM, Mikrogen Diagnostik) in order to validate ELISA specificity and to adapt the cut-off. In conclusion, the high HEV seroprevalence in swine in Belgium raises zoonotic concerns about HEV transmission from pigs to human and the role of pig herds as reservoir of this infection. Research supported by the Belgium Federal Public Service, Health, Food Chain Safety and Environment. We thank Dr Cariolet (Anses-Ploufragan) and Prof van der Poel (Central Veterinary Institute-Lelystad).