Detection of rabbit haemorrhagic disease virus 2 (GI.2) in Poland

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Abstract

In this paper we present the first cases of rabbit haemorrhagic disease virus 2 (RHDV2 – GI.2) in Poland. The virus was detected in liver samples of RHD-suspected rabbits from Lodzkie and west Pomeranian voivodeships. In both cases, the typical clinical symptoms of the disease were observed despite the fact that the rabbits were previously vaccinated against RHD. In order to extend the analysis of the RHDV2 strain infecting the rabbits, the entire VP60 and NSP genes were amplified and sequenced. The results of rRT-PCR assay have shown that tested RHDV samples were positive for the presence of RHDV2. In the phylogenetic analysis of vp60 gene the first Polish RHDV isolates (RED 2016 and VMS 2017) clustered together with the reference RHDV2, meaning they represent new evolutionary RHDV lineages. The first Polish RHDV2 isolates showed about 97% nucleotide sequence identity with the reference RHDV2 strains and approximately 18% difference from classic RHDV and RHDVa variants.

Key words: rabbit, RHDV2, Poland

Introduction

Rabbit haemorrhagic disease (RHD) is a highly infectious and fatal viral infection of wild and domestic rabbits (Oryctolagus cuniculus), responsible for important economic losses in the rabbit industry (Abrantes et al. 2012b). The disease was first reported in 1984 in China following the importation of commercially bred Angora rabbits from Germany (Liu et al. 1984). RHD is caused by rabbit haemorrhagic disease virus (RHDV), a Lagovirus europaeus (GI.1) of the family Caliciviridae (Le Pendu et al. 2017). Phylogenetic analysis revealed six pathogenic RHDV genogroups (G1-G6) and non-pathogenic related forms (Le Gall-Reculé et al. 2003). The origin and emergence of RHDV as a pathogenic virus affecting the European rabbits is still unclear but one of the hypothesis involves a direct evolution from non-pathogenic form of the virus (Kerr et al. 2009) and is an evidence for the existence of RHDV as a non-pathogenic form before the first documented RHD outbreak (Abrantes et al. 2012b). In 1996, the occurrence of a new RHDV virus - antigenic variant RHDVa - was reported in Italy and Germany (Capucci et al. 1998, Schirrmeier et al. 1999). More recently, in 2010, a new RHDV form, originally designated as RHDV2 (also named RHDVb), genetically and antigenically different from the classic RHDV and RHDVa, emerged in domestic and wild rabbits in France...