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Federal Research Institute for Animal Health

Rabbit Haemorrhagic Disease

New variant of RHD virus now also detected in Germany

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In an article published in LabLoeffler 04/2011 we reported of a new variant of Rabbit Haemorrhagic Disease virus (RHDV), which was first detected in France and against which the available vaccines provide no or only insufficient protection. This virus variant, currently designated RHDV-2 by the French scientists who first described it, has now also been detected for the first time in Germany in a rabbit holding in the district Unna, North Rhine-Westphalia. Approximately 6 weeks after immunization with a commercial RHD vaccine 16 of the 23 animals of different age groups which were kept in the holding died. Based on the clinical picture and pathological findings the veterinary diagnostic agency in Münster suspected RHD.

Further investigations carried out at the FLI by means of hemagglutination test, electron microscopy and ELISA confirmed that the causative agent was an RHD virus. The real-time RT-PCR used in the diagnostic routine (OIE method) however was negative. Sequencing revealed that the virus shows a high homology at the nucleic acid level (98% in the section encoding the hypervariable region E of the major structural protein) with an RHDV first detected in wild and domestic rabbits in Northwestern France in April 2010, while the relationship with classical RHDV is considerably more remote (approx. 80% homology). An RT-PCR established based on the sequence information provided by the French colleagues and adapted to this virus variant was positive. This confirmed the first detection of this virus variant in Germany.

Compared to classical RHDV, RHDV-2 shows a lower virulence and a slightly more protracted course of disease. Furthermore, younger animals are also susceptible. In France, the virus by now has almost completely replaced the classical strains. In the meantime it has also been detected in Italy (June 2011) and Spain, however without reaching the same widespread distribution as in France.

Conventional vaccines only provide insufficient protection. Pathology is comparable to that of classical RHD infection; due to exitus after subacute and chronic courses of disease a distinct icterus is seen more often. Pathogen detection is possible by hemagglutination test and electron microscopy; however data on the reliability in protracted courses of disease are rare. The commercially available antigen ELISA (Ingenasa) and the monoclonal antibodies provided by the FLI both are suitable for detection (also see AVID method collection). Currently, differentiation between the variants is only possible at the FLI by means of differentiating RT-PCR protocols.

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