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Author(s)	UEDA, Kaoru
Citation	Japanese Journal of Veterinary Research, 40(1), 64-64
Issue Date	1992-05-29
Doc URL	https://hdl.handle.net/2115/2397
Type	departmental bulletin paper
File Information	KJ00002377589.pdf



PATHOLOGY OF RABBIT HEMORRHAGIC DISEASE (RHD):
PATHOLOGY OF DISSEMINATED INTRAVASCULAR COAGULATION (DIC)

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Marked hepatic necrosis, multiple hemorrhages with congestion and DIC were noted in RHD. This study was carried out to investigate the histopathological lesions and hematological changes in experimentally induced RHD. The pathogenesis of DIC occurring in RHD is discussed.

RHD was experimentally induced in domestic rabbits using inoculum made of liver homogenates collected from rabbits infected with RHD virus in Korea after one passage in vivo. Of 18 inoculated rabbits, 7 succumbed to the disease.

Blood samples were collected at predetermined time intervals from the time of inoculation until death. All rabbits were necropsied immediately after death and samples were taken for histological study.

Survival time from the time of inoculation until death ranged from 27 to 40.5 hours, with an average of 33.2 hours.

Histologically, severe, diffuse degeneration or necrosis of hepatocytes was consistently seen in all 7 dead rabbits. DIC was also observed in many organs, especially in the kidneys, lungs, liver, spleen, heart and central nervous system. Congestion and hemorrhage were also seen in many organs.

Increases in the activated partial thromboplastin time (APTT), and prothrombin time (PT) were seen. Other hematological changes were hypofibrinogenemia, thrombocytopenia, increase of fibrin degradation products (FDP) and decrease of antithrombin III (AT III) activity. These changes were observed immediately before the animal died.

The hematological changes clearly indicate that the RHDV infection induced acute DIC in rabbits, and this was confirmed by the histological observation of DIC. Severe liver necrosis is thought to be the factor which causes DIC in RHD by inducing a hypercoagulable condition in the systemic circulation. This could account for the thrombi observed in organs and tissues with large amounts of blood circulation such as the lungs.