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STUDIES OF CARDIAC FUNCTION IN DOGS WITH MYOCARDIAL FAILURE

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In order to study cardiac function in dogs with myocardial failure, doxorubicin hydrochloride (DXR), an anthracycline antibiotic, was administered to 4 clinically normal dogs. The number of doses given to each dog varied from 5 to 10. The total cumulative dose of DXR ranged from 160 to 300 mg / m². Dogs were monitored by ultrasonography and electrocardiography. The results of ultrasonographic and electrocardiographic examinations after repeated administration of DXR were compared with those for canine idiopathic dilated cardiomyopathy. The results are summarized as follows :

- 1) All dogs showed fugitive anorexia and diarrhea after each administration of DXR. The clinical signs of heart failure, lack of activity and appetite existed for several days before death.
- 2) The effects of repeated administration of DXR on echocardiographic parameters were to produce low cardiac outputs and decrease myocardial function. Dilated cardiomyopathy was suspected upon echocardiographic examination.
- 3) On electrocardiographic examination, after repeated administration of DXR, cardiac dilation was found. ST-T depression and ventricular premature contraction were observed, indicating that myocardial injury had occurred.
- 4) Histological study of the cardiac ventricular wall tissue showed atrophy and mild to severe vacuolar degeneration of individual myocytes in dogs 1, 2, and 4. These dogs were diagnosed with cardiomyopathy on pathological examination. Dog 3 showed no myocytic degeneration.
- 5) There was no difference between idiopathic dilated cardiomyopathy and the doxorubic induced cardiomyopathy according to the echocardiographic and electrocardiographic examinations.
- 6) Left ventricular function monitored by echocardiography worsened with repeated administration of DXR. It is suggested that a depression of left ventricular function in the early stages of cardiac failure can be evaluated by echocardiography.