VI. Summary

Clinical aspects of dilated cardiomyopathy in the dog - retrospective and prospective investigations

150 Dogs, suspicious for dilated cardiomyopathy (DCM), presented to the small animal clinic between 1997 and 2000 were examined cardiologically and finally, 80 animals were selected by the following criteria: 1) hypokinetic myocard, proofed by echocardiography with an fractional shortening (FS) below 25 % and/or visible dilatation of the left ventricle without anomalies of the heart valves or other structures. 2) no systemic disease (excluding hypothyreosis).

The 80 remaining dogs were divided into two groups, depending on anamnesis and general examination. **Group 1** consisting of 70 dogs suffering from DCM was again divided into 3 subgroups related on severity (1a, 1b, 1c) according to the modified NYHA-classification. 10 dogs, suffering from hypothyreosis and DCM formed **group 2**.

The most frequently found anamnestic symptoms were diminished exercise tolerance, frequent panting, cough during exercise and lethargy. Only in dogs with pulmonary oedema coughing at rest was observed.

During auscultation, 81,3 % of the dogs had a systolic murmur. 60,7% of the dogs with severe heart failure had a murmur III°/V and louder. In dogs without congestive heart failure, soft murmurs dominated.

Radiologically, 85,5% of the dogs showed a cardiomegaly. Vertebral heart size (VHS) (*Buchanan and Bücheler, 1995*) was larger than 10,6 in 65,8% of the examined animals. In all dogs with congestive heart failure (**group 1c**), cardiomegaly was observed. All dogs in this group had a VHS > 10,6.

ECG showed frequently a tachyarrhythmia (65,8%). Among these, atrial fibrillation (26,6%) and premature contractions (24,1%) dominated. The incidence of arrhythmias increased with advanced heart failure. Clear ECG-signs of left ventricular enlargement were not common. When these ECG-signs were observed, there was no correlation to the severity of heart failure.

During echocardiography, the parameters FS%, LVDd, ESVI, and EPSS in **group 1c** (congestive heart failure) differed significantly from the others. The same observation was valid for IVSs, IVSd and LVPWs. Dilatation of the left atrium increased with the severity of heart failure and was present in all dogs of **group 1c**.

No major changes in blood chemistry were observed as indicative of heart failure, but concentration of free and total carnitine in serum was positively correlated with the severity of heart failure. There was also a significant difference in serum carnitine concentration between dogs with asymptomatic DCM (**group 1a**) and those suffering from congestive heart failure as result of DCM.
There was no correlation between the severity of heart failure and concentration of taurine in serum. In one English Cocker Spaniel, a taurine-responsive DCM was diagnosed.

Mean survival time for all 80 dogs was 41 months for the dogs alive at the end of the study, whereas in **group 1c** it was 31 days. The most important prognostic factor was the modified NYHA-stadium at first presentation. Further negative prognostic factors were a radiologic evidence of cardiomegaly, intensity of the heart murmur and existing arrhythmias such as atrial fibrillation and premature contractions. The extent of left atrial dilatation had a prognostic meaning for the whole group of examined dogs as well as for those, being in minor stages of heart failure. Furthermore, echocardiographic parameters such as LVDd, LVDs, ESVI and EPSS had prognostic evidence as far as the increase of these parameters lead to a negative prognosis in regard of survival time.