

7. Summary

Diagnosis of arrhythmias in cats – a study to improve arrhythmia diagnosis in cats with computer-assisted ECG registration and analysis methods (PC-EKG)

50 cats of different breeds and ages were submitted to a complete cardiological examination with the intention to improve the diagnosis of arrhythmias. For a more detailed examination of the occurrence of arrhythmia a PC-ECG was carried out on each cat. Aim of the study was to achieve an improvement in arrhythmia diagnosis in cats with computer-assisted ECG registration and analysis methods also the practical use and possible applications of the PC-ECG should be presented.

In order to achieve an appropriate comparison basis a routine screening ECG was performed on all cats before the PC-ECG was made. The 50 cats were divided in two groups in accordance to the performed method of PC-ECG recording.

Group A consisted of 30 cats (20 male, 10 female) and a modified prolonged ECG monitoring of a period of four to six hours was performed. The ECG registration occurred in a six limb lead without a fixation of the cat in right recumbency. **Group B** consisted of 20 cats (13 male, 7 female) and a ECG monitoring in the awakening stage after surgery was performed. The average registration time of the PC-ECG was 18,1 minutes. The ECG registration occurred in right recumbency of the cat in a six limb lead.

Among **group A** seven of 30 cats (23,3%) showed during the screening ECG various anomalies. Three cats had ventricular premature complexes (VPCs), two of them showed frequent VPCs (Salven von VES). Three cats had atrial premature complexes (APCs). One cat had a complete heart block another one showed a sinus arrest and a third cat had atrial fluttering. One cat showed a left anterior hemiblock. All seven cats showed during the PC-ECG monitoring the same arrhythmias. Six of these cats showed further arrhythmias. Three further cats had VPCs and two of them showed frequent VPCs. In three cases ventricular escape beats were found and two cats had APCs. One cat showed fluctuation of the QRS-complexes and two cat had a left anterior hemiblock. Eleven cats showed no arrhythmias during the screening-ECG, but various arrhythmias were found during the PC-ECG monitoring. Ten cats had VPCs and one of them showed additional frequent VPCs and multiple ventricular escape beats. Two cat had APVs and one cat showed a fluctuation of the

QRS-complexes. Eighteen of 30 cats (60%) of group A showed various arrhythmias during the PC-ECG monitoring.

All cats of **group B** showed a sinus rhythm during the screening ECG. One cat showed during the screening-ECG and the PC-ECG monitoring a high voltage. In six cases various arrhythmias during the PC-ECG monitoring were found. Four cats had VPCs, two had APCs and one cat had a complete heart block.

The analysis of the screening-ECG of both groups (A and B) discovered that eight of 50 cats had arrhythmias, while during the PC-ECG monitoring in 23 cases arrhythmias were found.

Within this study the PC-ECG proved to be a helpful support for arrhythmia diagnosis. The practical use is uncomplicated and the possible applications are manifold. The useage for a long-term ECG monitoring is, as well as the holter monitoring, time and work consuming.

A computer-assisted analysis of the ECG is only given by measuring aids for amplitude heights and times. Due to the small ECG waves of the cat a full automatic analysis by the presently existing analysis programs is not possible.