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Graduate School
Faculty of Veterinry
Department of Clinical Sciences

The Thesis Submitted for the Degree of M.Sc (In the field of Veterinary)

Title:

Investigating the incidence of chronic kidney disease (CKD) in cats with polycystic kidney disease (PKD)

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Abstract

Chronic kidney disease is known as the most common kidney disease in cats, which actually refers to a structural or functional disorder of one or both kidneys. Polycystic kidney disease (PKD) is an inherited disease that causes fluid-filled cysts in the kidneys and sometimes in other organs such as the liver and pancreas. Monitoring and investigation of PKD cases is necessary in order to control and improve the quality of life of these cases. In this study, we are trying to examine the performance status of all cats with PKD and also growth rate and its relationship with different stages of CKD. Among the 198 cats referred to the veterinary hospitals of Zabul and Shahid Bahonar University in Kerman, 12 cats with PKD were identified and included in the study, which were examined for 18 months for clinical signs, biochemical and hematology factors, urinalysis and imaging (ultrasound). All the remaining positive cases in the study were carefully examined at least twice (once on the day zero and once on the last day of the study) in terms of all the mentioned factors. Paired and independent t-tests were used for data analysis. The plasma concentrations of creatinine, phosphorus and BUN factors increased at the end of the study compared to the beginning, and the average of these changes is statistically significant ($P < 0.05$). Changes in the plasma concentration of calcium factor were not related to the passage of time, and the difference in the mean at the beginning compared to the end of the study was not significant. Also, the comparison of the measured length of the cysts at the beginning compared to the end of the study during periodic ultrasound examinations shows an increase in the size of the cysts by 14%. To compare the increase in the size of the cysts, the kidney was studied in the sagittal view and the size of the visible cysts in this view was carefully recorded and compared. Also, the changes of the two factors of erythrocyte and hematocrit in the final phase compared to the day zero show a statistically significant difference ($P < 0.05$). Also, a comparison was made between cats with PKD and the control group (healthy cats). There was no statistically significant difference in the factors measured between healthy cats and day 0 of cats with PKD, while there was a statistically significant difference in creatinine, BUN, phosphorus, calcium, erythrocyte and hematocrit factors compared to the final day of the study ($P > 0.05$). The results of this study show that cats with PKD, despite the care of the animal owner and the efforts of the veterinarian, the growth rate of CKD is significant. Creatinine, phosphorus, BUN, erythrocyte and hematocrit are related to the growth and development of kidney cysts, and this is compulsory to follow-up and pay attention to the mentioned factors to estimate the progress of polycystic kidney disease.

Keywords: PKD, CKD, Persian cat, ultrasonography