

PULSED-WAVE DOPPLER DERIVED INDICES IN CHRONIC KIDNEY DISEASE (CKD) IN DOGS

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Abstract: Kidneys are highly perfused organs that receive a large amount of blood, approximately 20% of the cardiac output. In most of the chronic kidney diseases the vascular circulations are expected to be modified and the renal hemodynamics/ compliance alteration that causes increase in the vascular resistance can be sensitively detected using pulsed-wave Doppler derived indices, *i.e.*, Resistive Index (RI) and Pulsatility Index (PI). The study was carried out at the Centre of Advanced Faculty Teaching in the Department of Veterinary Clinical Medicine, Madras Veterinary College Teaching Hospital, Chennai over a period of one year. Thirty eight dogs affected with chronic kidney disease were selected to study the Doppler derived renal indices (PI and RI). The clinical cases were further sub-grouped according to the guidelines developed by the International Renal Interest Society (IRIS), based on their serum creatinine values. Among the four stages of CKD, only stage III and stage IV were included in the study. Different parameters like clinical examination findings, systolic blood pressure, hematology, serum biochemistry, urinalysis, abdominal radiography, abdominal ultrasonography and pulsed-wave Doppler derived renal indices (RI and PI) were included in the study. Dogs affected with CKD were- usually of higher age groups and the effect of age on RI and PI was found to be minimal. A significant increased in renal indices (RI & PI) were found in the diseased group in comparison to the healthy animals. Correlation of the renal indices with Blood Urea Nitrogen (BUN), serum creatinine and red blood cell count were found in the dogs affected with CKD. RI was found to be increased as the renal damage progressed to the end stage renal disease (Stage IV CKD). The aim of this study was to evaluate the Resistive Index (RI) and Pulsatility Index (PI) in renal arteries as diagnostic and prognostic indicators for CKD in dogs.

KEY WORDS. Resistive Index, Pulsatility Index, Chronic Kidney Disease (CKD), dog.