Does My Greyhound Really Have Kidney Disease?

By William E. Feeman III, DVM

The kidneys are a complex pair of organs that serve many functions in the body. These functions include but are not limited to conservation of water, formation of urine, electrolyte balance, and acid-base regulation. Kidney disease or dysfunction could thus result in an inability to perform one or more of these functions. Clinical signs of kidney disease include increased drinking, increased urination, vomiting, diarrhea, dehydration, anorexia, weight loss and lethargy.

Kidney disease can be diagnosed in many ways, but bloodwork is the most common method used. The two main parameters used to judge kidney function on a blood test include the Blood urea nitrogen (BUN) and creatinine levels. Diagnosing kidney disease can be difficult because both BUN and creatinine levels can also be elevated with dehydration or urinary obstruction. In order for the BUN and creatinine to be elevated secondary to kidney disease, 75% of the kidney function must be compromised. Therefore if 74% of the kidney function was lost, the BUN and creatinine may still be normal.

A urinalysis can also be used to help in the diagnosis of kidney disease. The kidneys concentrate the urine and are responsible for reabsorbing water out of the urine. Elevated protein levels in the urine can be indicative of either kidney disease (Glomerular disease) or inflammation of the bladder. A urine protein:creatinine ratio (UPCR) test can be done to help determine the source of the urinary protein. An elevated UPCR is often indicative of kidney disease. A new diagnostic test has come out within the last two years (HESKA ERD screens) that tests the urine for trace amounts of protein

(microalbuminuira) that are too small to be detected in a normal urine sample. It is postulated that microalbuminuria is an early indicator of kidney disease. The urine specific gravity (USG) measures the concentration of the urine and aids in the diagnosis of kidney disease. The kidneys lose the ability to concentrate urine when 66% of the kidney function is lost. Urine specific gravities greater than 1.020 are considered adequate and indicative of functioning kidneys. An increase in drinking water (polydipsia) can result in a low USG and therefore be indicative of diseases unrelated to the kidneys. As a result, a low USG is found in most cases of kidney disease but a low USG is not always diagnostic for kidney disease. It is also critical that the USG is measured from a refractometer. The USG found on many urine sticks is very inaccurate.

The final diagnostic steps that can be used to aid in the diagnosis of kidney disease are x-rays (radiographs) and an ultrasound. Radiographs will allow the veterinarian to look for kidney stones and evaluate the shape and size of the kidneys. Abnormally large or small kidneys are a strong indicator of kidney disease. An ultrasound further allows the veterinarian to evaluate kidney structure and architecture. In some cases, an ultrasound guided biopsy of the kidney may be taken for a definitive diagnosis.

Treatment options for kidney disease can vary widely based on the diagnosis. A simple change in diet is recommended for mild cases and intensive hospitalization, intravenous fluids and possible surgery may be recommended for more severe cases.

The complicating factor in the diagnosis of kidney disease in Greyhounds is that Greyhounds run a significantly higher BUN and creatinine than other breeds (exact values will vary by the laboratory used). Many Greyhounds will have high normal or just

above normal BUN and creatinine values, yet their kidney function is completely normal. If your veterinarian is suspicious of kidney disease based on only mild elevations in bloodwork, ask him/her to run a urinalysis and to check the USG using a refractometer. If the USG is >1.020 then the elevations in bloodwork are unlikely to be from kidney disease, but from another source. In this example, the values are suspected to be normal for a Greyhound. If the urine specific gravity is low and there is no protein in the urine, request an "ERD" urine screen. If this test is negative and the Greyhound is asymptomatic, I would recommend rechecking the BUN and creatinine in another 4-6 weeks to ensure the values are not worsening. Elevating values over this time period would be indicative of kidney disease and appropriate treatment should be discussed with your veterinarian.

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