INTERPRETING RENAL VALUES IN THE FERRET

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While renal disease in the ferret is a relatively common clinical or post-mortem finding, the clinical diagnosis of renal failure in ferrets appears to be a bit more complicated than in dogs and cats.

For a complete assessment of renal function in the ferret, a complete blood count (CBC), a chemistry analysis, a urinalysis and an ultrasound exam should be done. The clinical signs of renal failure in ferrets commonly include a loss of appetite, polyuria/polydypsia (PU/PD), lethargy, dehydration, and hind limb weakness. An ultrasound exam will provide anatomical and physiological information of the kidneys. Renal cysts are very frequently encountered and should be noted. However, if the cysts do not displace a significant amount of renal tissue, no action is needed. Frequent (every 1-2 year) recheck of the cystic status is recommended.

In ferrets interpretation of the renal values in the chemistry profile can be confusing. It appears that the serum creatinine value is not a useful indicator for renal disease, as it is in dogs and cats. In addition to this, the blood urea nitrogen (BUN) levels also have to be interpreted with caution. As in other mammals, an increase in BUN can be caused by either pre- or post-renal factors, making this value alone inadequate on which to base a diagnosis of renal failure. Causes for a pre-renal azotemia include dehydration, shock, sepsis and gastric ulceration. Common causes for a post-renal azotemia include urolithiasis, urethral obstruction and prostatitis. It has been proposed that approximately 75% of renal tissue must be compromised before a significant elevation of BUN and creatinine occur in the ferret.1

Another and potentially more reliable method of monitoring and evaluating renal function is by using the electrolyte levels. Focusing on three electrolytes, namely potassium, phosphorus and calcium, and comparing the findings to the normal values published for ferrets can make the diagnosis of renal failure simple and accurate. Normal values for potassium, phosphorus and calcium in ferrets have been published as:

<table>
<thead>
<tr>
<th>Electrolyte</th>
<th>Normal Values</th>
<th>Suspect Renal Disease</th>
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</thead>
<tbody>
<tr>
<td>Ka</td>
<td>4.3-5.3 mmol/l</td>
<td>Greater than 6 mmol/l</td>
</tr>
<tr>
<td>P</td>
<td>5.6-8.7 mg/dl</td>
<td>Greater than 10 mg/dl</td>
</tr>
<tr>
<td>Ca</td>
<td>8.5-10.5 mg/dl</td>
<td>Less than 8 mg/dl</td>
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The occurrence of hyperkalemia, hyperphospatemia and hypocalcemia together is a good indicator for renal disease.

In order to adequately diagnose renal failure in the ferret, it is important to assess the findings of the history, the clinical signs, the clinical pathology and imaging modalities. Only this comprehensive picture will truly indicate renal compromise.

References