Idiopathic hypercalcaemia in cats

In cats, there are several causes for hypercalcaemia including hypercalcaemia of malignancy and chronic kidney disease. However, idiopathic hypercalcaemia is now considered the most common cause for a high serum calcium concentration in cats. Cats of any age (6 months to 20 years) can be affected; however, they are typically middle aged (5.8-9.8 years).

Idiopathic hypercalcaemia is often slowly progressive and more than 50% of cats are asymptomatic or have such mild signs that they are not detected until blood work is run for another reason. Unlike dogs which often develop PUPD, many symptomatic cats with hypercalcaemia display lethargy and anorexia and only about 25% are PUPD. Another 25% develop GI signs with vomiting, diarrhoea or constipation. Occasionally urolithiasis may develop causing lower urinary tract signs. In general, clinical signs do not develop until serum total calcium concentration exceeds 3.75 mmol/L.

Clinical Pathology

There is no diagnostic test for idiopathic hypercalcaemia and it is a disease of exclusion. Findings in the CBC and biochemistry (other than calcium) are non-specific but running a sick animal profile may help in ruling out other causes for hypercalcaemia.

Total calcium: Total serum calcium (tCa) is often elevated; however, some cats may have a normal tCa but elevated serum ionised calcium (iCa). Hypoalbuminaemia lowers tCa so this should also be taken into consideration.

Ionised calcium: Ionised calcium is high. This parameter is not easily measured in practice and care with sampling, storage and transport is necessary in order to get an accurate result at a commercial laboratory. Acidification of serum is common in samples that are left in contact with RBCs due to lactic acid release. This artificially elevates iCa. On the other hand, too much dead space at the top of the tube causes loss of carbon dioxide which lowers iCa.†

Urinalysis: May be within normal or haematuria and crystalluria may be seen.

† To obtain a sample for iCa, blood is collected into a serum tube (as full as possible) and allowed to clot before centrifuging. Uncapping the tube briefly to remove the serum is not going to adversely affect the iCa concentration, but otherwise collect the serum by using a needle through the rubber top making sure that there is no air in the syringe during collection. Place the serum in a second vacuum red top tube by going through the cap, minimise the dead space above the sample, keep the sample chilled and send chilled to the lab as soon as possible