Serum Bile Acids

Serum bile acids are synthesised in the liver from cholesterol and excreted into the bile, entering the GIT where they assist with emulsification of fats to facilitate absorption. Bile acids are conserved via the enterohepatic circulation, with only small amounts being lost in the faeces.

Bile acid determination is a cost effective and simple means of assessing hepatic function. The sensitivity of this test may be improved by using dynamic testing which involves collection of a pre and 2 hour post prandial sample. Wherever possible it is best to try and adhere to normal meal times and meal type.

Increased serum bile acid concentrations are encountered with a reductional in functional hepatic mass, impaired hepatocyte function, an anomaly of the portal vasculature and cholestasis. Assessment of serum bile acid concentrations is typically not advised in patients with known cholestatic disease.

Quick guide to interpretation

- Bile acid concentrations <15umol/L are not associated with hepatic pathology.
- Concentrations exceeding 25umol/L are typically associated with hepatic pathology, but do not differentiate between primary and secondary hepatic pathology.
- Patients with a fasting bile acid concentration between 15-25umol/L, or below 15umol/L but where there is a strong clinical suspicion of hepatic disease may benefit from dynamic testing.
- Fasting bile acid concentrations >50umol/L may prompt further investigation including imaging studies or biopsy unless there is evidence of underlying disease.

Extra-hepatic disease which may be associated with increased serum bile acid concentrations includes but is not limited to GIT disease, hyperadrenocorticism, and “functional cholestasis” as may be encountered with prolonged inappetence and pyrexia.

Puppies being screened for developmental anomalies are best screened after 16 weeks of age as false negative results may be returned in younger puppies.

Occasionally fasting bile acid concentrations may exceed post-prandial concentrations, and in these cases, the higher value should be interpreted. This anomaly is thought to be associated with spontaneous contraction of the gall bladder in a fasting patient or due to altered gastrointestinal motility.

Serum bile acids are a useful indicator of hepatic disease in horses and many exotic species. Clinical utility in ruminants and camelids is hindered by variability in serum bile acid concentrations