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## Today's veterinary practice

This article answers some of the most frequently asked questions about heartworm screening and diagnosis that the AHS gets from general practitioners. Folatelets should be counted via manual blood smear review in addition to automated hematology analyzers, particularly for patients with bleeding disorders. Treatment involves a 5-step plan: management, social communication/counsel, desensitization and counterconditioning, and medication. Schistosomiasis is a parasitic infection of emerging importance in dogs and infection occurs during contact with contaminated freshwater sources. Initial management of GHM should first focus on environmental modification followed by praziquantel agents. Clients have begun trying to understand and seek healthier pet diets, including questioning the AAFCO human-grade labeling claim, ultra-processed food concerns, and dietary AIGs. 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Marketing Marketing The technical storage or access is required to create user profiles to send advertising, or to track the user on a website or across several websites for similar marketing purposes. Veterinary Practice Today is a personal and professional development (PPD) journal for the whole practice team – a valuable resource for veterinary surgeons, veterinary nurses, practice managers and receptionists. Hepatobiliary disease is an important cause of morbidity and mortality in dogs and cats and can present a diagnostic challenge for two main reasons. First, patient signalment varies because liver disease and dysfunction can occur in cats and dogs of any age, sex, or breed (see Case Studies). Despite this, the patient's signalment can sometimes give important clues because certain breeds have disease predispositions; for example, Labrador retrievers are predisposed to copper-associated chronic hepatitis. Second, elevations of serum liver enzyme activities are commonly encountered in small animal practice but are not specific for primary liver disease. However, early in the course of liver diseases, such as chronic hepatitis, patients may have no or only subtle, nonspecific clinical signs, such as intermittent anorexia or lethargy. In these patients, increased liver enzyme activities may be the first indicator of a problem. More liver-specific clinical signs, such as icterus, ascites, edema, polyuria/polydipsia, and hepatic encephalopathy, tend to occur later in the course of disease, when it is often too late to prevent its progression. Therefore, early diagnosis of liver disease often relies on serum biochemical testing. This article reviews the interpretation and limitations of serum liver enzyme activity and liver function tests. Signalment and Presentation A 3-month-old female mixed Irish wolfhound presents for stunted growth and episodes of intermittent lethargy and disorientation. Results of Diagnostic Testing A serum biochemistry panel is performed, with the results in Table A. The fasted ammonia concentration is 175 mcg/dL (normal range, 0–50 mcg/dL). Preprandial and postprandial (2-hour) SBA are 40 mcmol/L (normal, 0–8 mcmol/L) and 102 mcmol/L (normal, 0–30 mcmol/L), respectively. Interpretation The combination of hypoalbuminemia, decreased BUN, and hypochlosterolemia suggests decreased hepatic synthetic capacity. The ALT and AST activities are within normal limits, making hepatocellular damage unlikely; the ALP activity is only mildly elevated, probably because the dog is growing. The ammonia concentration and SBA results suggest portosystemic shunting and/or hepatic insufficiency. Given the patient's signalment, clinical findings, and laboratory abnormalities, a congenital portosystemic shunt is likely and imaging (ultrasonography and/or computed tomography) is warranted. Case 2 Signalment and Presentation An 8-year-old male neutered Labrador retriever presents for a 3-month history of decreased appetite and weight loss. Results of Diagnostic Testing A serum biochemistry panel is performed, with the results in Table B. The fasted ammonia concentration is 150 U/L (6 times ALP may also be elevated in patients with osteomyelitis or osteosarcoma. Dogs with hyperadrenocorticism and those receiving glucocorticoids can be expected to have increased ALP activity due to the glucocorticoid-induced isoenzyme. Conditions that can cause an increase in ALP activity include those listed in Table 1. The highest activities of ALP have been reported with conditions such as cholestasis, steroid hepatopathy, chronic hepatitis, and hepatic neoplasia.<sup>7</sup> This lack of tissue specificity can make increases in activity of ALP hard to interpret. The half-life of ALP is approximately 70 hours in dogs and 6 hours in cats.<sup>3</sup> In cats, which lack the glucocorticoid-induced isoenzyme with a shorter half-life, increases of serum ALP activity are more specific for hepatobiliary disease than in dogs and are generally clinically relevant. Gamma-Glutamyltransferase (GGT) is associated with the cell membranes of hepatocytes that form the bile canaliculi and bile ducts, as well as peritubal hepatocytes. It is a marker of intrahepatic (eg, feline hepatic lipidosis) or extrahepatic (eg, bile duct obstruction) cholestasis. In dogs, it has a higher specificity (87%) and lower sensitivity (50%) for hepatobiliary disease compared with ALP.<sup>7</sup> In general, GGT is a more sensitive marker of feline hepatobiliary disease than ALP. However, in cats with feline hepatic lipidosis, GGT is generally only mildly elevated.<sup>8</sup> No definitive studies determining the half-life of GGT have been performed in cats or dogs. However, serum GGT and ALP activities decrease after liver injury at a similar rate in dogs, suggesting that they have a similar half-life.<sup>9</sup> Interpreting Liver Enzyme Elevations The degree of the increase in hepatocellular damage enzyme activities may help estimate disease severity as follows:<sup>5</sup> Mild: 2- to 3-fold elevation in activity Moderate: 5- to 10-fold elevation in activity Marked: >10-fold elevation However, such increases do not always correlate with severity of disease. This is true in dogs and cats with portosystemic shunting and dogs with end-stage chronic hepatitis, in which hepatocytes are replaced by fibrous tissue. Therefore, the degree of liver enzyme increase should be interpreted with caution. Because the liver has a large regenerative capacity, the degree of liver enzyme elevation should also not be used to indicate prognosis. For example, a dog with acute liver injury may have severely increased serum ALT activity but can still make a full recovery. Longitudinal monitoring trends in liver enzyme activities can help in determining chronicity and monitoring disease progression and/or response to treatment. In evaluating liver enzymes, it is important to determine what type of elevation pattern is present (ie, hepatocellular damage versus cholestasis). A relatively greater increase in ALT and AST activity indicates hepatocellular damage, while a greater increase in ALP and GGT activity indicates cholestasis, which could be intrahepatic or extrahepatic. Establishing the pattern may help narrow the differential diagnosis. However, some liver diseases can display a mixed pattern (eg, cholangitis, phenobarbital hepatopathy). Liver Function Testing Routine biochemical testing can give clinicians an insight into data-block=1<div data-bbox=

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