

LIVER DISEASE

Multiple processes exist in dogs and cats which can cause liver disease. In most syndromes, the liver has undergone *inflammation* and/ or *necrosis*. Inflammation is an invasion of white blood cells into the liver from the bloodstream. With an overwhelming invasion of these cells, liver cell death may result. This process is called necrosis. Inflammation without necrosis is a reversible process. However, irreversible damage to liver cells may occur as well.

Chronic hepatitis can occur in any breed of dog, male or female, and at any age, although most dogs diagnosed with this disease are middle-aged to older. Though the exact mechanism of the disease is unknown, genetics most likely play a role in its development in certain breeds. Cholangiohepatitis is a condition seen primarily in cats. Again, most affected animals are middle-aged to older. Persian cats may have a genetic predisposition.

SYMPTOMS

Symptoms associated with liver disease vary greatly. Signs may be acute (sudden), intermittent, or chronic (long term). Common signs may include a decreased appetite, lethargy, vomiting, and diarrhea. The animal may drink and urinate more, have a swollen abdomen often with abdominal pain, and have a *jaundiced* (yellow to orange) tinge to the skin, eyes, ears, and gums. Occasionally, these animals will exhibit strange behavior or neurologic signs, including severe depression, weakness, aggression, head-pressing, blindness, and sometimes even seizures or coma.

The clinical signs in animals diagnosed with acute or mild liver disease may resolve with the administration of antibiotics alone. Though the prognosis for an animal with chronic liver disease is guarded to poor for the long term, some animals may live for months to years.

CAUSES

Multiple causes exist for liver disease. It may be a result of previous damage to the liver by infectious agents such as viruses or bacteria. Disease may result from the migration of intestinal tract bacteria to the liver via the common bile duct. Toxic damage to the liver may result from ingested poisons or the abnormal accumulation of substances made in the body. An attack of the immune system against the liver may also cause inflammation and cell death, a condition known as *auto-immune* disease. Cancer can result in liver damage as well.

DIAGNOSIS

Diagnosis begins with a thorough physical examination and a review of health history. Confirmation of liver dysfunction is achieved by a variety of blood tests. Notable increases in the bloodstream levels of liver enzymes will occur. A *bile acid* test may be elevated, suggesting that the liver function is compromised. When liver disease is more advanced, changes observed in the blood may include decreased cholesterol, proteins, and *glucose* (sugar). The patient's clotting ability may also be decreased, leading to the risk of hemorrhage. A urinalysis may be run as well, indicating decreased urine concentration and/or protein in the urine. Imaging techniques such as x-ray or abdominal ultrasound are commonly used to assess the size and appearance of the liver.

A liver biopsy is the only definitive way to obtain a specific diagnosis. A biopsy may be obtained through the skin with a special needle and ultrasound guidance, or it may be obtained surgically under general anesthesia. The potential benefits and risks, as well as the precautionary measures that should be taken prior to a biopsy procedure, will vary from case to case, and should be discussed at length with your veterinarian.

TREATMENT

Treatment of liver disease is complex, and is determined based upon the severity and type of disease, as well as the clinical signs exhibited by the patient. Hospitalization, intravenous fluid
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therapy, and supportive care may be necessary. Medications commonly used to treat liver disease include antibiotics, immunosuppressive or anti-inflammatory agents, antacids and stomach protectants to prevent ulceration, and diuretics to increase urination and promote excess fluid loss. A number of dietary supplements have been shown to be effective due to their antioxidant, anti-immune, and anti-inflammatory effects on the liver. Some of these include vitamin E, milk thistle, and SAmE. The prescription medication *ursodiol* (Actigall) may be used to aid in the breakdown of bile sludge. Unfortunately, despite appropriate treatments for liver disease in pets, the condition is often not curable. Many patients, however, may be kept free of clinical signs and have a good quality of life for months and even years. Frequent recheck examinations and blood work evaluations are important so that your veterinarian can make changes in the therapy as needed.

HOME CARE

Home care is a long-term undertaking. Antibiotics are important during the initial therapy for liver disease. Often anti-immune or anti-inflammatory medications are used for several months to indefinitely. If clinical signs of stomach ulceration or fluid retention are apparent, medications to treat these conditions are continued at home. Nutritional supplements are both safe and effective, and are recommended for long-term use

Diet is an important aspect of managing liver disorders. The goal is to provide optimal nutrition while decreasing the workload on the liver. Such diets have reduced levels of high quality protein, reduced sodium, easily digested carbohydrates, and high quality fats. It is common, however, for animals with liver disease to reject many types of food offered to them. This lack of appetite is especially of concern in cats. In this species, a simple extended (2-3 day) lack of appetite may result in a life-threatening disease called *hepatic lipidosis*. This syndrome may occur when fat levels in the liver are very high, thus, obese cats are much more prone to it. Fat continues to accumulate until it overwhelms the ability of the liver to function. Cats in this situation often need to be fed through a feeding tube until a healthy appetite returns. While special diets are important in the management of liver disease, it is more important that the animal maintain an adequate caloric intake. If a recommended diet is poorly tolerated, any diet allowing appropriate intake is encouraged. Many prescription diets for liver disease are available. Your veterinarian can provide you with specific dietary recommendations.

MONITORING

As mentioned earlier, many animals with liver disease can be managed for months to years. It is critical to monitor for signs associated with liver failure, including vomiting, diarrhea, abdominal pain, lethargy and decreased appetite. If such signs are noted, it is important to seek veterinary care immediately. Liver enzymes should be monitored every few weeks during the initial treatment phase for liver disease. Treatment generally will extend 2-3 months after the enzyme levels return to an acceptable range. If a patient is receiving ursodiol medication, enzymes may need to be monitored more frequently. If a liver disorder resolves or is successfully managed, a physical examination and complete blood panel should be evaluated every six months.

COSTS

Estimated costs for a pet with liver disease are as follows: the initial exam and blood testing will cost about \$220-300. If the work-up includes x-ray(s) and ultrasound, the cost will increase by approximately \$500. Initial therapy including hospitalization (2-3 days), IV fluid therapy, medications and specialized blood tests (bile acid assay, etc.) will run approximately \$500-600 additional. Therefore, the cost estimate for an animal diagnosed with and treated aggressively for liver disease is approximately \$1,200-1,500. The cost for home management will vary, as each management protocol is uniquely tailored to the needs of the patient. Recheck examinations and blood testing may be required every 2-3 months to once yearly. Prescription diets, oral medications and dietary supplements are considered long-term costs. Total estimated annual costs therefore may run from \$300-600.

Please speak with a veterinarian if you have any questions about liver disease in your senior pet.