Exocrine Pancreatic Insufficiency

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BASIC INFORMATION

Description

The pancreas is a flat, glandular organ that is found in the upper part of the abdomen, near the stomach and liver. The pancreas has three major functions. One part of the pancreas, called the *endocrine pancreas*, produces the hormone insulin, which regulates blood glucose. The bulk of the pancreas, called the *exocrine pancreas,* produces the enzymes necessary to digest food. The last major function of the pancreas is to produce fluid and bicarbonate for mixing of food in the intestines. Exocrine pancreatic insufficiency (EPI) occurs when there is a loss of exocrine pancreas tissue and the animal cannot make enough enzymes for normal digestion. EPI can occur in both dogs and cats, but the disease is very rare in the cat.

Causes

The most common cause of EPI in the dog is a condition called *pancreatic acinar atrophy*. Dogs with this condition gradually lose the exocrine cells in the pancreas, for reasons that are unclear. Pancreatic acinar atrophy is most common in the German shepherd dog and the rough-coated collie. In these breeds, it is thought to be an inherited disease. Although EPI arises most often in these breeds, dogs of any breed can be affected. Cats and some smaller dog breeds may develop EPI if they have chronic pancreatitis for an extended period of time. Pancreatic acinar atrophy tends to occur in young adult dogs (often less than 2 years of age), whereas EPI associated with chronic pancreatitis tends to occur in middle-aged to older animals.

Clinical Signs

Because the animal is unable to digest food properly, signs of maldigestion are present. The most common sign is diarrhea. The animal usually passes feces that are very soft and pulpy, and the total volume of feces produced in a day is often dramatically increased. Since food is not being absorbed properly, the animal is unable to take in enough energy and usually loses weight or does not grow appropriately. Dogs often have a dramatically increased appetite and may eat their own feces (coprophagia). Cats are less likely to have an increased appetite and very rarely develop coprophagia. Vomiting may occur occasionally, and the hair coat may be of poor quality. (Also see the handouts on **Pancreatitis in Dogs** and **Pancreatitis in Cats**.)

Diagnostic Tests

Because the major clinical sign of exocrine insufficiency is diarrhea, other diseases that can cause diarrhea must be ruled out. Routine laboratory tests, fecal examinations, and x-rays may all be recommended.

To test the amount of pancreas tissue that is present, a specialized blood test is used. This test measures the amount of a digestive enzyme, called *trypsin*, in the bloodstream. Low levels of trypsin indicate that the pancreas is not producing enough enzymes. Other specialized tests for diseases of the small intestine are often run at the same time.

TREATMENT AND FOLLOW-UP

Treatment Options

The best treatment for EPI is to provide an oral supplement of digestive enzymes. These enzymes come in tablet and powder forms and are extracted from the pancreases of cows and pigs. Dietary supplements using plant enzymes do not work as well as enzymes from animal sources. The digestive enzymes are given with every meal and are usually required for the rest of the animal's life.

Feeding a lower-fat diet often helps to reduce the severity of the diarrhea. Vitamin supplements are often recommended, such as vitamins A, K, and B12. Some animals are also given antacid medications or antibiotics because of the presence of excessive numbers of bacteria in the small intestines.

Follow-up Care

Typically, a significant improvement in diarrhea and weight gain is seen within 14 days after starting the enzyme supplements. Body weight, consistency of the feces, appetite, and coprophagia are all monitored. High doses of enzymes may cause bleeding of the gums, which requires lowering the dose. Notify your veterinarian if initial signs do not improve or recur, or if new signs develop.

Prognosis

The prognosis for most dogs with EPI is good, assuming that the enzyme treatment is given properly. A poor response occurs in about 20% of affected dogs. Therapy is usually lifelong and can be expensive in large dogs. For cats, the prognosis is more guarded (uncertain). Cats are often harder to treat with the digestive enzymes because they avoid their food when the enzymes are added. Affected cats also tend to develop diabetes mellitus (sugar diabetes), which can be difficult to manage.

IF SPECIAL INSTRUCTIONS HAVE BEEN ADDED, THEY WILL APPEAR ON THE LAST PAGE OF THE PRINTOUT.