

Diabetes, I Didn't Know Dogs and Cats

Could Get That

Diabetes mellitus is a lack of insulin. Insulin is important to control blood sugar. When you eat a meal the sugars are absorbed from the intestines into the blood. The ingestion of the meal also signals the release of insulin from the pancreas. Insulin is needed to move the sugar from the blood into cells; the cells then use the sugars as energy. Animals and people with low levels of insulin still absorb the sugars from the intestines into the blood but the sugars cannot be removed from the blood by the cells. This results in higher than normal blood sugar. When the blood sugar is too high it filters out of the kidneys along with higher than normal amounts of water. This results in higher than normal amounts of water leaving the body as urine. Diabetic animals then drink more water to keep up with the water loss. When an owner reports their dog or cat seems to be drinking a lot and urinating a lot diabetes mellitus is a likely cause. Other causes for these signs can include kidney disease, Cushing's disease (increased production of steroids), and other diseases. The diagnosis of diabetes mellitus requires two things, 1: Increased blood glucose and 2: Glucose in the urine.

At the time of diagnosis pets may also have ketones in their urine. Since glucose is the main energy source for most cells, they become energy starved without insulin. To make up for this the body starts to use fatty acids for energy, producing ketones as a result. The ketone levels become higher and higher in untreated diabetes and result in an acidotic state known as Diabetic Ketoacidosis.

Uncomplicated vs. Complicated Diabetes: A patient with uncomplicated diabetes usually appears healthy at the time of diagnosis. Complicated diabetes refers to animals that are ketoacidotic or hyperosmolar (very high levels of glucose in the blood but no ketones). These animals may have a poor appetite, vomiting, dehydration, poor body condition. They may also have other problems such as kidney failure, urinary tract infection, Cushing's disease. Animals with

complicated diabetes usually require hospitalization to stabilize them prior to starting on long acting insulin.

Diabetes and dogs:

At the time of diagnosis almost all dogs have insulin dependent diabetes. This means the pancreas is no longer producing insulin and the dog will require insulin injections for the rest of its life to control the diabetes. It is also important to determine if the dog has uncomplicated or complicated diabetes when they are first diagnosed.

Once a patient has been diagnosed with diabetes I have a discussion with owners to make sure they are able to devote the time and effort to properly treat a diabetic animal. Dogs usually require twice daily injections of insulin on a fairly tight schedule. The injections are usually 12 hours apart so owners need to be home every day at that time to give the injections. Most dogs require frequent trips to the veterinarian for monitoring of blood glucose levels and other blood work. If the owner is not able to give the insulin as recommended regulation of the diabetes will be difficult. The patient will likely have high and low spikes on blood sugar or return to a ketotic state that will again require hospitalization.

Every animal is different with response to insulin. Some patients regulate quickly and do very well with insulin therapy. Some pets have a very difficult time regulating even if the owners are highly committed to proper care. These pets can have day to day variations in blood glucose levels with the same dose of insulin given. They may have severe drops in blood sugar resulting in tremors or seizures or again may have consistently high blood sugar resulting in a return of ketosis.

Once owners decide they want to treat their diabetic pet a treatment plan is developed. Uncomplicated diabetics are usually started on twice daily intermediate acting insulin. Usually dogs will stay in the hospital for 24 hours to have a blood glucose curve done. This helps determine if the insulin dose is working or needs to be adjusted. A special food is also recommended. Diabetic

diets for dogs are usually high in fibers. This allows the intestines to slowly absorb the sugars over a longer period which in turn helps to stabilize blood sugar.

If the patient has complicated diabetes they are usually hospitalized on IV fluids and given short acting insulin. This insulin can be adjusted more frequently to help stabilize the blood sugars. Depending on the patient other treatments will also be needed such as daily blood work to assess electrolytes and hydration status. If an animal is suspected of having Cushing's disease further testing will also be needed. Pets with concurrent problems such as Cushing's or bladder infections will be very difficult to regulate until those other problems are controlled.

With proper treatment diabetic pets can live a long, happy life. If you are concerned your pet drinks and urinates a lot or may have diabetes please call 303-674-7400 to set up an appointment. There are significant differences in treating cats versus dogs. Next week I will discuss diabetes in cats.