

DIABETES MELLITUS

Diabetes- a serious & increasingly common endocrine disease in pets

Diabetes is a complex metabolic disorder resulting from impaired or deficient production or secretion of insulin from the pancreas. The pancreas is an organ in the abdomen that produces both digestive enzymes needed to break down food in the gut, and insulin- the hormone substance that directly regulates blood sugar levels and indirectly regulates carbohydrate, fat, and protein metabolism in the body. All cells of the body require insulin to allow glucose (blood sugar) to move from the blood stream into the cells. The hormone insulin acts like a key. In diabetics, a lack of insulin leads to high blood sugar levels yet the cells are starving for glucose. Predisposing causes of diabetes include: obesity, genetic predisposition, poor diet, stress, drugs, previous infection, and cancer. Many times, dogs & cats develop diabetes with no underlying cause. Similar to humans, there is no "cure" for diabetes, but the disease is CONTROLLED via administration of synthetic insulin once or twice daily. If diabetes is not controlled, the patients can develop neuropathy and weakness- especially in their hind legs, blood clots & loss of peripheral circulation, and develop diabetic ketoacidosis (DKA). Once the stage of DKA is reached, pets will die without emergency therapy.

Symptoms

- Muscle weakness, lethargy, & depression
- Increased thirst (polydipsia)
- Frequent urination (polyuria)
- Increased appetite (polyphagia)
- Rapid weight loss despite good appetite
- Frequent urinary tract infections
- Blindness (diabetic cataracts & retinal detachments)

Diagnosis-Based on history, clinical symptoms, and laboratory tests

- Blood work shows a **persistent high blood glucose (sugar) level**- typically greater than 400 gm/dl (normal is b/n 100-200).
- Urinalysis shows **persistent high levels of glucose in the urine**- glucose spills into the urine when blood levels are greater than 400.
- **Fructosamine**- another blood test that measures the "average" blood sugar level for the past 10 days.

Treatment- 1-2x/day injections of insulin

- Dogs & cats are started on insulin therapy as soon as diabetes is diagnosed. Insulin is given as an injection under the skin (SQ) either once or twice a day depending on the type of insulin given and the severity of the disease.
- The blood glucose levels must be carefully monitored during the initiation of therapy to prevent the blood glucose from dropping too low causing the dog to go into a coma. It can take several weeks to months to figure out the correct dose of

- insulin for each individual, but once regulated, diabetics can do quite well.
- Blood glucose levels should be monitored every few months with regulated diabetics, or anytime the pet becomes sick.
 - When diabetics are not regulated well, their blood sugar can go too low causing coma, and / or too high causing a severe condition termed diabetic ketoacidosis (see DKA article for more details).
 - All diabetics should be fed balanced high protein diet twice a day and insulin should be given only if the animal eats.
 - The key to successful management of diabetes is to follow a routine and make feeding, exercise, and insulin administration as consistent as possible from day to day.

Prognosis

Good to poor depending primarily on owner compliance and successful initial regulation. As mentioned it may take several months to regulate a difficult diabetic, but usually once regulated, the pet can thrive.