ACVIM Fact Sheet: Diabetes Mellitus

Overview
Diabetes mellitus is a condition that occurs due to insulin deficiency within the body. The name is derived from the Greek words “diabetes,” meaning excessive urination and the Latin word “mellitus” referring to honey or the presence of sugar. When a patient’s blood sugar is high, sugar will “spill over” into the urine pulling with it fluid from the blood. This will result in excessive and sweet urine, hence the name diabetes mellitus.

Diabetes in humans occurs in two forms, Type 1 diabetes or insulin-dependent diabetes mellitus (IDDM) and Type 2 diabetes or non-insulin-dependent diabetes mellitus (NIDDM). Insulin-dependent diabetes is the most common type recognized in dogs and many cats, whereas non-insulin dependent diabetes occurs occasionally in cats and rarely in dogs. Insulin-dependent diabetes develops due to destruction or damage to the cells in the pancreas that produce insulin, this may be due to genetic influences, environmental factors, inflammation or immune-mediated destruction of the pancreas. Non-insulin dependent diabetes mellitus is usually associated with insulin resistance within the body. This type of diabetes is commonly seen in obese or overweight animals. Insulin resistance can also stem from infection, inflammation, or other hormonal disorders.

Signs & Symptoms
Increased water consumption and urination are the two most common signs seen in diabetic dogs and cats regardless of the type of disease. Dogs and cats with diabetes often have a good appetite but tend to lose weight. Additional signs of illness (vomiting, diarrhea, or decreased appetite) may be seen in diabetic animals that are left untreated or in those that develop concurrent illness that complicates the control of their disease. Fortunately, dogs and cats do not commonly develop many of the long-term complications that are seen in people with diabetes. However, most dogs with diabetes will develop cataracts within a year of diagnosis that progress to blindness; this condition will develop even with appropriate treatment. Poorly managed diabetic cats may develop a problem with their nervous system leading to weakness and an inability to jump; this may or may not be reversible with treatment.

Diagnosis
Diabetes mellitus is diagnosed by the presence of elevated blood glucose (sugar) and glucose in the urine. Unfortunately, stress can cause elevation in blood glucose and glucose in the urine of cats, which may make the diagnosis more challenging. Additional tests may be recommended to confirm the diagnosis or to screen for other conditions commonly seen with diabetes mellitus (ie. a urine culture to screen for urinary tract infections).
**Treatment & Aftercare**

Treatment of diabetes mellitus may include diet change, oral medications, exercise, and insulin therapy. If insulin resistance is suspected, identifying and treating concurrent disease is an important part of diabetic management. The exact treatment recommendations vary by case and should be determined by the veterinarian managing the case. Most animals have insulin-dependent diabetes and insulin injections are necessary. In many cats diabetic remission is possible, so insulin use may be avoided altogether or only needed transiently. Insulin needs can be quite variable, so different insulin types, doses and even frequencies may be attempted until your dog or cat’s disease becomes controlled. Insulin handling, storage and administration is different for each insulin type and should be reviewed with your veterinarian. Once an animal is started on treatment, regular veterinary visits are needed to evaluate control and periodic check-ups are recommended for ongoing monitoring. Ultimately, the goal in treating most animals with insulin dependent diabetes is to minimize clinical signs, since “curing” the disease is generally not possible.

**Prognosis**

Overall prognosis for an animal with diabetes mellitus is good. Many of these animals are able to live healthy lives with appropriate veterinary care and dedicated owner commitment. Treatments for diabetes mellitus might initially appear overwhelming, but, with time can become part of you and your pet’s daily routine.

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