

Diabetic Pet Birds

Is there any other treatment besides insulin injections when your pet bird is diagnosed with diabetes?

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Low blood sugar (hypoglycemia) can be dangerous or life threatening. For this reason, owners of diabetic birds must always keep corn syrup, sugar water or other simple-sugar containing liquids on hand, in case of a hypoglycemic crisis. If the blood-glucose level drops too low, seizures, coma or death can result.

My first pet cockatiel, Buzzy, was a diabetic, so, being both an avian vet and an owner of a diabetic bird, I do have some insight to share. Diabetes mellitus is a disease involving the pancreas. To understand treatment, we must first have at least a basic understanding of diabetes and the hormones produced by the pancreas. So, let's start there.

With mammals, diabetes mellitus is caused by the pancreas no longer producing enough insulin, a hormone involved with sugar metabolism and regulation. This is called Type 1 (or juvenile) diabetes. In mammals, Type 2 diabetes occurs when the body no longer responds correctly to insulin. In both forms, the blood glucose level rises, often to dangerous levels, and the body is unable to adequately utilize glucose for many necessary body functions. There is also another disease called diabetes insipidus, which is a completely different. So, for the rest of this column, I will refer only to diabetes mellitus when I use the term diabetes.

Most parrots with diabetes, like mammals, also have elevated blood-glucose levels, but the cause is different. In mammals, diabetes is caused by problems with not enough insulin. But with avian species, the problem is that too much of the hormone glucagon is produced. Glucagon overproduction causes the blood-sugar level to rise, just as when insulin is not properly utilized, which also results in high blood-sugar levels. The end result in both cases is high blood-sugar levels. (I have often thought there should be another name for psittacine diabetes, because the cause is so different, although the result is the same.)

More On Avian Diabetes

What causes diabetes in birds is unknown. Some speculate that weight, diet and heredity are factors. It is most common in cockatiels, budgies and toucans.

The symptoms of avian diabetes are similar to those found in other species.

Urinalysis will show elevated sugar levels.

Birds with diabetes often drink excessive amounts of water and also urinate excessively. (Increased urine in the droppings must be differentiated from diarrhea, which is an increased volume of fluid in the feces.)

Some birds with diabetes may start out overweight, but many will become thin from not properly utilizing glucose. Animals with diabetes are more susceptible to infections.

An elevated blood-sugar level, called hyperglycemia, is a symptom and not a disease in itself. There can be many causes of hyperglycemia in birds, stress is one. Corticosteroids can also elevate blood-glucose levels, either when produced by the adrenal glands of the bird, or if administered orally, topically or injectably.

Vets unfamiliar with avian medicine may use a topical cream or ointment containing a steroid, usually to treat feather picking, which can end up mimicking the signs of diabetes. Certain liver diseases and infectious diseases can also cause hyperglycemia and the signs of diabetes.

Diagnosis

Blood-glucose levels that are persistently elevated above 500 to 600 mg/dl, can indicate diabetes. Blood glucose levels can range from 600 to 2,000 mg/dl, and a definitive diagnosis of diabetes can usually be made if the blood-glucose level is persistently above 800 mg/dl.

A thorough physical examination, complete blood count and plasma chemistry panel should be performed, including a

urinalysis. Normal avian urine can contain trace to moderate amounts of glucose. Unfortunately, there is no easy way to test a bird for elevated levels of glucagon. There is a way to test insulin levels, but because this seems to be a problem with the overproduction of glucagon, it would not be helpful. Therefore, blood glucose levels, the bird's history, clinical signs and other test results are all used in diagnosing diabetes.

Treatment

In all cases, it is vital for the diabetic patient to consume a low-carbohydrate, low-sugar diet. Some carbohydrates are necessary for life, so they should not be eliminated completely from the diet. The amount of daily activity and exercise for a diabetic bird must also be regulated in order to maintain blood sugar levels within normal limits. Injectable insulin used for humans often results in variable uptake, utilization and breakdown by psittacines. For some reason, birds tend to quickly eliminate insulin from their systems. Dosing is highly variable, and some birds quickly develop insulin resistance.

With diabetic birds, the goal of treatment is to provide enough insulin to overwhelm the overproduction of glucagon in the system, unlike normal Type 1 diabetes, where the goal is to provide enough insulin to bring the blood-glucose levels back down to normal. The result is the same — to normalize blood-glucose levels is the goal.

Unfortunately, injectable insulin has proved less than satisfactory in controlling blood glucose levels in avian patients. Even long-acting injectable insulin usually only provides a few hours of normal glucose utilization by the tissues.

The medication you mentioned, glipizide, has proved to be an effective treatment for diabetes in birds, better than injectable insulin, in some cases. This medication is given orally, which is easier for some owners who might be wary of needles.

While hyperglycemia is detrimental to the health of an animal, it cannot cause a life-threatening immediate situation, but hypoglycemia can. Low blood sugar can cause shaking, pale, cool skin, anxiety and may even progress to hypoglycemic seizures and death. At the first sign of hypoglycemia, something containing simple sugars should be administered (but not chocolate or caffeine containing products).

In humans, we strive for very tight control of blood-sugar levels, but this is just not practical or possible in psittacine patients, so we hope to keep the blood sugar within the normal range as best we can. This may require significant testing to establish a correct dosage of medication.

One way to monitor the patient at home is by using urine dipsticks for sugar. Birds should have a trace amount of sugar in the urine on a daily basis. Still, the diabetic patient needs to periodically be seen and evaluated by its avian vet. Because there is no cure for diabetes, treatment will most likely continue for the life of the bird.