

Insulinoma in Ferrets

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Pancreatic beta cell tumor or insulinoma, is a common disorder in ferrets over 3 years of age. The small clusters of cells in the pancreas that normally produce insulin become abnormal (cancerous) and begin to produce excessive amounts of insulin. The normal job of insulin is to drive blood sugar (glucose) into the cells following a meal. Too much insulin will result in too much sugar leaving the bloodstream. This results in hypoglycemia that can ultimately become life-threatening in the affected ferret.

Clinical signs are attributable to hypoglycemic episodes: hindlimb weakness, wobbling, hypersalivation, increased amounts of sleeping, glazed eyes or stuporous appearance, and just an overall lack of energy. If the blood sugar becomes too low for the brain to function properly, seizures will occur and ultimately, a coma-like state. Seizures are usually seen only in advanced cases. Onset of insulinomas is often insidious and many ferret owners miss the early signs of the disease. I often hear from the owners of older ferrets that their pets are "slowing down and getting old". A good majority of these ferrets are actually suffering from low blood sugar and once treated, have renewed vigor.

Diagnosis is based on clinical signs, and hypoglycemia (blood glucose levels less than 60 mg/dl). Insulin levels can be measured but are not always reliable; i.e., values can be normal in an affected ferret depending on at what point in time the blood is measured. Insulin levels can fluctuate in ferrets with insulinomas. Blood sugar levels can sometimes fluctuate as well and in certain cases, a 3-5 hour fast may be recommended prior to sampling the blood glucose levels.

Treatment can be medical or surgical or a combination of both. Medical therapy is designed to increase the blood glucose concentration. Prednisone (Pediapred®) stimulates the production of blood sugar and is the first line of treatment. Diazoxide (Proglycem®) has anti-insulin effects and is added in with the prednisone if and when hypoglycemic episodes return. These drugs are temporary measures and do not actually cure the disease. They control the low blood sugar caused by the insulinoma and have saved many ferret lives. Once diagnosed with an insulinoma, the ferret will need to be on these drugs forever, or until surgery is performed.

Diet modification is an important part of treating the insulinoma ferret. Ferrets with insulinomas should not be fed diets high in simple sugars, like Nutrical® or raisins, as this can wreak havoc with blood insulin levels. High protein, high fat meals are more effective at stabilizing blood sugars levels. Most ferret diets are appropriate. The anorexic or inappetant ferret can be supplemented with hand feedings of cooked chicken or the human products Ensure® or Sustacal® until the ferret once again eats the regular diet. The only time sugar is recommended is if the ferret goes into a hypoglycemic crisis. These ferrets benefit from a little honey or syrup rubbed on the gums until veterinary care can be given (ASAP!)

Surgery involves excising individual abnormal nodules in the pancreas or removing part of the pancreas itself. Although these tumors are considered cancerous, they rarely metastasize (spread) to other tissues. Most insulinomas will come back, making treatment palliative and not curative. Fortunately, this is a slow process and once diagnosed, ferrets can live 6 - 24 months with appropriate therapy. Prognosis varies and depends on the age of the ferret, therapy (medical or surgical), and the existence of other diseases (remember, these are older ferrets and often have multiple conditions at the same time).