

# Introduction to Feline Diabetes Mellitus

## Causes

Diabetes in cats occurs due to either insulin deficiency or insulin resistance as it does in dogs, however the underlying causes are different. Immune mediated destruction of beta cells is rare in cats. Chronic pancreatitis and amyloid deposition are important. Insulin resistance may be triggered by obesity, progestagens, glucocorticoids, HAC, acromegaly, hyperthyroidism, infection and concurrent disease. Both insulin deficiency and resistance may occur in one patient.

Two thirds of diabetic cats require insulin. About one third of diabetic cats experience resolution of their diabetes within the first few months of therapy and are termed 'transient diabetics'. Remission occurs if the underlying causes are removed e.g. obesity, steroid therapy and may last weeks to years.

## Signalment and clinical signs

Diabetes can affect any breed or gender of cat, male neutered are most commonly affected. One of the main clinical signs is PUPD, which occurs due to glucosuria that draws water into the urine. Polyphagia with concurrent weight loss is also important due to the inability to utilise sugars as a result of the lack of insulin. Cats occasionally present with a plantigrade stance. Cataracts are rare.

## Diagnostic tests

Cats can develop stress hyperglycaemia. Blood glucose can rise up to 20nmol/L from stress alone, this will then cause glucosuria, which can persist for several days. Therefore making a diagnosis of diabetes on the basis of hyperglycaemia and glucosuria can lead to over diagnosis. Measurement of serum fructosamine usually confirms the diagnosis. Fructosamine is formed when albumin and glucose react together irreversibly and gives an idea of average blood glucose over the preceding 1-2 weeks. Reduced total protein and hyperthyroidism can cause a decrease in the result. Chronic stress can cause a small increase but not usually into the same range as diabetes.

## Treatment

The details of this are covered in fact sheet no 5.1. Stabilising the healthy diabetic cat. The main difference between cats and dogs is that although most cats require insulin therapy some can be treated successfully with diet alone or a combination of diet and oral hypoglycaemic drugs. However, resolution of diabetes may be less likely if normoglycaemia is not established rapidly eg cats on oral hypoglycaemic drugs. There are 3 main aspects to therapy:

**Diet:** either high protein low carbohydrate diets or high fibre '*weight reducing*' diets can be used. Most cats can be stabilised without the need for a precise feeding regime, if they prefer to nibble ad lib this can usually continue.

**Insulin:** PZI can be given once or twice daily. Lente must always be used twice daily in cats.

Oral hypoglycaemics - should only be considered in non-ketotic clinically well cats. They should not be used in thin cases. Glipizide is the most commonly used tablet.

## Monitoring

In cats that experience stress hyperglycaemia blood glucose measurements are not helpful. These cats can be stabilised by monitoring a mixture of clinical signs, body weight and serum fructosamine.

In those that do not have the stress problem clinical signs, fructosamine, blood glucose nadirs and intermittent blood glucose curves can be used.