General Practice Service

Willows Information Sheets

Diabetes Mellitus

Willows
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Diabetes Mellitus

What is diabetes mellitus?

As in humans, dogs and cats with diabetes mellitus are unable to control the level of sugar in their blood. This is due to a lack of, or inability to use, a hormone called insulin. Insulin allows the tissues of the body to absorb glucose (sugar) from the blood in order to provide energy.

There are two types of diabetes mellitus:

1) ***Insulin dependent diabetes mellitus*** – this is caused by destruction of the cells that make insulin, so that the body can no longer produce this hormone. It is seen in both cats and dogs.

2) ***Non-insulin dependent diabetes mellitus*** – this is caused by resistance of the body to insulin due to obesity or other factors, i.e. the insulin is there, but the body is unable to use it. It is sometimes seen in cats.

Cats may also have a condition called transient diabetes where their requirement for insulin fluctuates over time.

What are the clinical signs of diabetes mellitus?

- Drinking and urinating a lot
- Ravenous appetite (although some patients will go off their food in advanced disease or concurrent illness)
- Weight loss
- Neurological signs and weakness
- Collapse
- Urinary infections

How is diabetes mellitus treated?

All diabetic dogs require insulin injections. These injections will need to be given once or, more commonly, twice daily. Some cats can be managed with hypoglycaemic drugs (drugs which reduce blood sugar) but most will need to be given regular injections of insulin.

Use and care of insulin

When you first start to treat your pet you will be shown how to load the syringe and inject your pet safely. We will be happy to repeat these tutorials as often as required. Although many people are apprehensive about handling needles, most owners are soon competent and confident with this procedure. If you have any problems please feel free to ask.

You will be provided with special syringes with tiny needles with which to inject your pet. Each time you are given a new packet it is important to check it is the correct type of syringe, as there are several different types with different scales. Use a fresh needle for each injection to prevent contamination of the bottle.

Please dispose of your needles safely. You will be provided with a yellow 'sharps' bin. Place each syringe in here directly after use. Do not recap the needle after use as this is the most common time for needle jab injuries to occur. When the bin is full, lock the lid and return it to us for incineration.

Insulin is a natural protein and as such is easily damaged. It must be kept in the fridge to prevent fluctuation of temperature. If you accidentally leave it out then you should purchase a new bottle. Before each injection the bottle should be gently rocked to mix it, not shaken. It will have a use by date of 28 days from the date of opening. If kept for longer than this it may stop working and destabilise the patient.

Diet

Regular feeding of diabetics and the type of food given is important. Your vet will discuss your pet's needs. It is important that your pet does not become overweight as this may make him or her resistant to insulin (i.e. the body will not respond to it). Overweight animals will need to lose weight in a controlled manner and we will guide you in this regard.

Exercise

It is important that affected dogs continue to exercise regularly as this will help to keep their weight down. Also exercise has also been shown to make insulin work better, resulting in better stability of the blood sugar levels.

Don't expect a quick fix

Diabetes can take some time to stabilise and until that time there may be repeated blood tests and visits to the vets. Please let us know if you are struggling with giving the medication, as this has a dramatic effect on our ability to stabilise patients.

Other medical conditions (e.g. Cushing's syndrome) and infections (e.g. dental disease) will also affect our ability to stabilise diabetes. Even once we have our diagnosis of diabetes mellitus we may need to perform further tests to rule out concurrent diseases. Entire female dogs will need to be spayed, as female hormones can interfere with stabilisation.

How is diabetes mellitus monitored?

All animals will respond differently to a given dose of insulin, so we need to monitor each individual very carefully. To monitor diabetes we need to take repeated blood tests for blood glucose and also for a blood product called fructosamine. Fructosamine gives us an idea of the average blood glucose over the last three weeks, whereas the blood glucose only tells us what is happening right now. Blood glucose will vary over the day, usually starting high and then getting lower in response to the insulin injection. We will often have to take a number of blood samples over a single day to plot the changes which occur. This is called a glucose curve.

It can be very difficult to monitor diabetic cats, as even normal cats can quickly develop transitory high blood glucose levels just due to the stress of having a blood sample taken. If this happens alternative monitoring methods are required.

We need you to observe your pet for any changes in normal routine. Please pay particular attention to:

- the amount of water consumed
- the amount of urine produced
- appetite
- bodyweight
- behaviour

What is hypoglycaemia?

A potential side effect of insulin administration is hypoglycaemia (low blood glucose). If your pet appears unsteady on its legs or off colour in any way then a small amount of honey or preparatory glucose solution should be applied to the gums in case he or she is having a hypoglycaemic episode. Veterinary advice should be sought immediately.

What are the potential complications of diabetes mellitus?

- ***Cataracts*** – cataracts are changes in the lens of the eye which will cause an animal to go blind. The vast majority of dogs will develop cataracts within 6 to 12 months of developing diabetes. Specialist treatment is available, however, and the majority of diabetic patients do very well after cataract surgery Diabetic cataracts do not tend to occur in cats unless the diabetes occurs when they are very young.
- ***Retinal disease*** – degeneration of the sensitive area at the back of the eyes
- ***Neuropathy*** – disease of the nerves
- ***Nephropathy*** – kidney disease
- ***Infections*** – it is common for diabetic patients to develop infections, especially of the urinary tract
- ***Ketoacidosis*** – in cases of uncontrolled diabetes, toxic metabolites (natural break down products) are produced which can lead to illness, depression, coma and death

The better the stabilisation of the patient, the better these complications are likely to be controlled or prevented.

In summary

It is important to remember that diabetes is a dynamic disease, so the requirements of your pet may change over time. For this reason even when diabetic patients appear stable it is necessary to carry out blood tests every 2 to 4 months.

Owning and caring for a diabetic pet requires considerable time and financial commitment as well as dedication and adherence to a strict feeding, medication and exercise regime.

If you have any concerns about your diabetic pet please do not hesitate to contact us.

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