Home Blood Glucose Monitoring for diabetic cats and dogs using a glucometer


Measuring blood glucose levels at home is an important step in the successful management of the diabetic patient. Blood glucose levels enable a tight control of the sugar level, more so then by measurement of urine glucose. Glucometer kits are now available online that enable measurement to be made at the convenience of home, and without the stress of bringing your pet to the vet. The stress involved with the travel to the hospital can cause significant false elevations of blood glucose.

To obtain an at home glucometer kit, I recommend going to www.alphatrakmeter.com. The kit includes 25 days worth of test strips, and lancets for use in obtaining the blood sample. Familiarize yourself with the glucometer. When switched on, a code number will appear. It should be adjusted to match the code indicated on the test-strips container for either cat or dog.

OBTAINING THE BLOOD SAMPLE:
Preferred sites for obtaining the drop of blood, using the lancet provided, include the pisiform pad (the one in back of the “wrist” that they don’t walk on), and the marginal ear vein. The outside of the ear flap is better to use in cats, while the inside of the ear flap is best for dogs with floppy ears. The buccal mucosa (gums right above the cheek teeth) is optimal for large or medium sized dogs with a good temperament. The lateral elbow callus (bald rough spot on the elbow) can also be used in dogs. Small dogs and those who might otherwise bite can be sampled from the redundant skin fold at the dorsal base of their tails (where the tail meets the top of their back), a small area of which can be kept shaved for that purpose.

CAPILLARY EAR PRICK SAMPLING TECHNIQUE:
- Hold warm cloth against the ear to increase circulation.
- Use a lancet to prick the ear margin.
- Protect your finger on the other side of the ear flap.
- Allow a drop of blood to form, or massage the ear if necessary
- Apply the top of the test strip, already inserted into the glucometer, directly to the drop of blood.
WHEN TO TEST:

Blood glucose should be measured first thing in the morning, prior to any food or insulin, and 12 hours later, before the next dose of insulin. This enables us to be sure that the patient is in need of its full twice a day dose, before the insulin is given. In general, the glucose should not be higher than 300, or lower than 80 (mg/dl- some glucometers measure slightly different). It is important not to give insulin to a patient whose blood glucose is 150 or less.

OBTAINING A BLOOD GLUCOSE CURVE (BGC):

In order to learn the duration of effect of the insulin in an individual, and to make sure that glucose levels are stable during the day, a series of measurements (the BGC) should be formed soon after starting therapy with insulin, and then every 2-4 weeks until the patient is stable. If the initial daily reading is at 7am, then it should be repeated at 10am, 1pm, 4pm, and 7pm. The results should be reported to the veterinarian the next day.

OTHER MONITORING:

- Water consumption- should return to normal and remain normal soon after starting insulin
- Urine production- Same as above. Cats should no longer flood their litter boxes.
- Weight- patients who have lost weight should regain it.
- Urine glucose- can be monitored every 1-2 weeks with a dip stick (ketodiastix). Most well regulated patients will show a slight positive for urine glucose. If cats are negative for 48 hours in a row, they may have gone into remission.
- Blood Fructosamine Testing: Unlike the blood glucose, which gives a “snapshot” of what the sugar levels is at that time, this test enables the veterinarian to tell how well controlled (tightly regulated) the patient has been for the past 3 weeks. This test should be performed 1 month after starting treatment and every 3-6 months when the patient is stable.
ADJUSTING THE INSULIN DOSE:

Normally dogs and cats start their insulin therapy at a dose of $\frac{1}{2}$ of a unit per lb of body weight, which is often adjusted upwards or downwards over the first few weeks, based on the BGC and other factors. The twice daily blood glucose reading should be in the range of 200-250 (mg/dl), in which case, the patient should continue to receive the same dose of insulin. If the insulin level is higher than 300 mg/dl, do not adjust the dose until you have consulted your veterinarian. Never adjust the dose more than once per week. However, if the insulin level is lower than 200 mg/dl do not exceed the following dose levels, assuming the dose was originally higher:

<table>
<thead>
<tr>
<th>Cat BG (mg/dl)</th>
<th>Cat Insulin dose (units)</th>
<th>% of previous dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>150-170</td>
<td>0.25</td>
<td>25%</td>
</tr>
<tr>
<td>171-185</td>
<td>0.5</td>
<td>50%</td>
</tr>
<tr>
<td>186-200</td>
<td>0.75</td>
<td>75%</td>
</tr>
</tbody>
</table>

- For pets that have eaten less than $\frac{1}{2}$ their normal food, give $\frac{1}{2}$ the amount.
- For dogs, give a percentage of the previous dose based on the blood glucose level as indicated by the table above. Be sure to contact your pet’s veterinarian as soon as possible after having to correct your pet’s insulin dose in this way.
- If possible, perform a BGC on your pet that day, taking care to note any hypoglycemia (blood sugar below 80 mg/dl). Should this occur, offer food and be prepared to administer Karo syrup if necessary.
- If a value under 60mg/dl is obtained, give Karo syrup and recheck every 30 minutes, then see your veterinarian as soon as possible. In the event of weakness or seizures, bring straight to the emergency center.
FEEDING INSTRUCTIONS:

Cats and dogs should be fed about ½ hour after they get their twice daily injection of insulin. Cats should preferably be fed a high fat, high protein, low carbohydrate canned food, such as prescription DM (found at your veterinarian). These foods are also available as dry for cats that refuse canned. Some cats diagnosed with diabetes will lose their insulin requirement within a month once they start a prescription diet.

Dogs should be fed a high fiber diet such as prescription weight management formulas, in order to slow the absorption of sugars and avoid a spike of high blood sugar after eating.

Dogs should be exercised twice daily after feeding to help reduce the glucose spike. Strenuous & sporadic exercise can cause severe hypoglycemia and should be avoided.