LANTUS (glargine) insulin is a human insulin with long lasting action, which we have used in the treatment of 7 patients (4 dogs, 3 cats) diagnosed with diabetes mellitus type I, but who did not respond to the initial treatment with Mixtard-30 insulin. These patients were still manifesting the distinctive clinical signs of diabetes mellitus type I, and after the use of Lantus (glargine) insulin the signs disappeared, the glycaemia values were between 140 and 220 mg/dL, and the glucosuria disappeared or was extremely low. The doses we used were 0.5 UI/kg/day for cats and 1 UI/kg/day for dogs, once a day, administered in the evening at approximately 19:30, before dinner.

Key words: Lantus insulin, diabetes mellitus, dogs, cats

We took into account 7 patients (4 dogs, 3 cats) diagnosed with diabetes mellitus, “insulin-dependent” diabetes, for which we used the treatment with Lantus (glargine) insulin in conjunction with a low-carbohydrate diet, diabetes tea and proper exercise. This is long-acting insulin (24 hours), which can be used in combination with other types of insulin or with orally administered anti diabetic drugs. We used this treatment for the patients diagnosed with diabetes mellitus for no more than 3 months, and which did not respond to the initial treatment in which Mixtard-30 insulin was used.

Materials and methods

This study done on 4 dogs (Irish setter, English setter, Golden retriever and Rottweiler) and 3 cats (Birmanese and 2 mixed breed) diagnosed with diabetes mellitus type I, who did not respond to the initial treatment. These patients were treated in the Medical Clinic of the FMV Bucharest between May 2008 and February 2009. All of the patients were investigated regarding: anamnesis, clinical signs, laboratory tests (blood biochemistry, urinary analysis), ultrasound and ophthalmologic exam (to detect cataract in dogs).

Results and discussions

Lantus is a human long-acting (24 hours) basal insulin analogue. It can be used both in cats and dogs, but has better results for cats (6). We used it for the patients diagnosed, no longer than 3 months, with diabetes mellitus type I

“insulin-
dependent' diabetes), who did not develop insulin resistance, but also did not respond properly to the initial treatment in which Mixtard-30 insulin was used in conjunction with a low-carbohydrate diet and diabetes teas. In all these patients, after serum insulin measuring, below normal values were obtained. These animals constantly had, after Mixtard-30 insulin injections, "a jeun" glycaemia values over 350mg/dL, sometimes even reaching 600mg/dL. After Mixtard-30 insulin administration and food after 30 minutes, the glycaemia was measured at 2, 4 and 6 hours, the values obtained were sometimes of over 350mg/dL, and sometimes the glycaemia remained unchanged. Due to these values and the fact that the animal consumed large quantities of water – over 40mL/kg/day (polydipsia and compensatory polyuria) – but also to the unchanged blood biochemical values, the normal aspect of the pancreas in the ultrasound exam, we decided to use Lantus insulin instead of the initial treatment. The doses used were 0,5UI/kg/day in cats and 1 UI/kg/day for dogs, once a day, in the evenings at 19-19:30, before dinner. The animals were given no later than 30 minutes after a low-carbohydrate meal and the owners were asked to measure the blood sugar levels at about 4 or 5 hours after the injection because this type of insulin can induce hypoglycaemia after this period(6). If that were to happen (hypoglycaemia), we recommended honey or sugar water, a small quantity of food, and the reduction of the insulin dose by 0,25UI/kg/day.

![Fig.1. Glycaemia evolution after treatment with Mixtard-30 insulin in one dog](image)

If the "a jeun" glycaemia, 7-7:30, was over 350mg/dL, the patients were given an equal dose of Mixtard-30 insulin; if the morning glycaemia was between 250 and 350mg/dL we administered Diaprel; if the glycaemia was under 200 mg/dL the only thing given was diabetes tea.
As in human medicine the patients need 7 to 10 days to get used to the new type of insulin, during which time the dose should not be modified. It is only recommended for the clinical signs (polyuria, polydipsia, appetite, breath smell, dehydration degree and also the presence or absence of glucosuria) to be observed.

All patients with type I diabetes, including the ones treated with Lantus (glargine) insulin were examined daily for the first two weeks, then once a week and then monthly on a permanent basis.

Currently all these patients are in a good general state, the amount of water drank is between 20 and 40mL/kg/day, the “a jeun” glycaemia and the evening values do not exceed 250mg/dL.

Fig 2. Abdominal ultrasonography – pancreas with normal aspect

Fig 3. Abdominal ultrasonography – pancreas with normal aspect
Conclusions

The use of Lantus insulin was a success both in dogs and cats. The main advantage of this type of insulin resides in the fact that it can be used once a day.

Other advantages include the lower price in comparison with other types of insulin, the reduced stress of the animal and the comfort of the owner due to the "once a day" administration.

We used this type of insulin in diabetic animals that were no longer responding to Mixtard-30 treatment.

References