

# A REPORT ON DIABETES MELLITUS IN A PET CAT

**A.K. Srivastava<sup>1</sup>; Sangeeta Srivastava<sup>2</sup>; Ashish Srivastava<sup>3</sup> and Saurabh Chaturvedi<sup>4</sup>**

Director<sup>1</sup>, Surgeons<sup>2,4</sup>, Physician<sup>3</sup>, Pet Aid Center, Indiranagar, Lucknow, U.P., India.

Diabetes mellitus is common in cats as its prevalence varies between 1 in 100 to 1 in 400 (Rand, 1977). However, diabetes mellitus is less common in cats than in dogs. This paper reports the diagnostic and treatment aspects of diabetes mellitus in a pet cat.

A 8 yr old castrated pet cat was presented to the Pet Aid Center with a history of losing weight, depressed appetite, vomiting since 2 days, lethargy and frequent water intake and urination. On clinical examination, the cat was found weak (3.5 kg), dehydrated, dull, had a poor hair coat, palpable liver and bilateral cataract. Blood analysis revealed- PCV -50%, Hb-7.2 g/dl, TLC-14000/ $\mu$ l, TEC-2.5 million/ $\mu$ l, random glucose- 290 mg/dl, blood urea-134 mg/dl, creatinine-2 mg/dl, AST-35.4 U/I, ALT- 96.6 U/I, SAP-41 IU/l, Na<sup>+</sup>-132 mEq/l, K<sup>+</sup>-4 mEq/l and HCO<sub>3</sub> 22 mmol/l. Urine dipstick indicated glycosuria with 4+ glucose. Plain radiography of the abdomen indicated hepatomegaly. A tentative diagnosis of diabetes mellitus was made and the animal was stabilized with lactated ringers and ampicillin 100 mg iv. The following day, fasting blood glucose level was 715 mg/dl, urea-170 mg/dl and creatinine 2.40 mg/dl. Urine dipstick indicated glycosuria with 4 + glucose.

Treatment was instituted with lactated ringers solution to correct the dehydration. Protamine zinc insulin (Knoll Pharmaceutical Ltd, India) therapy was started with 1 unit/kg bwt sc. The animal showed remarkable improvement and started to eat by the third day. Its dose was reduced to 0.5-units/kg b wt sc and after 4 days, fasting blood glucose level became 224 mg/dl. There was also a gradual decrease in urine glucose. The animal was stabilized and maintained with 5 IU of insulin therapy every day and the treatment was continued.

The animal was stopped to bring at Pet Aid Center after 5 days and owner was instructed to test the urine daily morning by

dipstick, feed the cat with high fibre moderate fat canned diet 1/3rd of the daily requirement and inject insulin immediately after feed, based on the urine dipstick test. The rest 2/3rd of the feed was advised 8 hr later. The owners perception of appetite, weight gain, activity and overall health indicated good improvement and the cat gained weight by 2 kg, had shown improved feed intake and signs of polydipsia and polyuria disappeared.

Many characteristics of feline diabetes are similar to type 2 diabetes in humans, which is associated with pancreatic amyloid deposition. The hallmark of type 2 diabetes in both cats and humans are decreased insulin secretion especially in response to a glucose load and insulin resistance, the only difference being that feline diabetes requires exogenous insulin whereas human to the fact that diabetes is more advanced in feline patients when it is finally diagnosed. Diabetes is typically diagnosed in older cats which supports the theory that beta cell exhaustion is involved in the progression of the disease and is associated with high carbohydrate diet and obesity (Brand Miller and Colaguri, 1994). Neutered male cats outnumber females as the females have a greater risk of obesity and lower insulin sensitivity (App sensitivity (Appleton et al., 2000)).

The present case was neutered and had a history of high carbohydrate diet. AST, ALT and SAP were elevated probably due to fatty liver. Elevated urea and creatinine may have resulted from dehydration and protein catabolism. Good control of clinical signs and management of blood glucose at optimal levels were achieved by using Protamine zinc insulin and dosage was based on daily urine dipstick evaluation. High protein low carbohydrate diet allows a reduction in insulin dosage by 50% without compromising glucose control in diabetic cats (Frank *et al.*, 2001).

## References

- Appleton, J. Rand, J.S. and Sunvold, G.D. (2000). Feline obesity: Pathogenesis and implications for the risk of diabetes. IAMS Nutr Symp Proc. 81-90.
- Brand Miller, J.C. and Colaguirri. S. (1994). The carnivore connection: Dietary carbohydrate evolution of NIDDM. *Diabetologica* **37**:280-286.
- Frank, G., Anderson., Hodgkins, E., Joan Laflamme, D. (2001). Use of high protein diet in the management of feline diabetes mellitus. *Vet. Ther.* **2**: 238-246.
- Lutz, A and Rand, J.S. (1995). Pathogenesis of feline diabetes. *Vet. Clin. North American Small Anim. Pract.* **25**: 547- 552.

### **LIFE MEMBERSHIP**

Membership of the Society is open to Veterinary / Medical Graduates who are actively engaged in the field of Canine Practice. For the membership, please write to **Prof. (Dr.) A.K. Srivastava**, Secretary General or **Dr. Rajesh Varshney**, Treasurer, Indian Society for Advancement of Canine Practice, 21/5, Sector-21, Indira Nagar, Lucknow – 226 016 (U.P.) India.  
The Life Membership Fee is Rs.1000.00 / \$ 25/ £ 18 .