

Transitioning Cats from Lente Insulin to Protamine Zinc Insulin

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In the Literature

Gostelow R, Hazuchova K, Scudder C, Forcada Y, Church D, Niessen SJM. Prospective evaluation of a protocol for transitioning porcine lente insulin-treated diabetic cats to human recombinant protamine zinc insulin. *J Feline Med Surg.* 2018;20(2):114-121.

FROM THE PAGE ...

This study* assessed a protocol for transitioning cats from a porcine-source lente insulin (LI) to a human-recombinant protamine zinc insulin (PZI). Although both insulin formulations have been shown to be efficacious in the management of feline diabetes mellitus, PZI has been reported to exhibit a longer duration of action in a model of healthy cats.¹⁻³

Inclusion criteria included diagnosis of diabetes mellitus within the previous 5 months, twice-daily LI injections for at least 6 weeks, and eating a low-carbohydrate, high-protein diet for at least 10 days. Cats ($n = 22$) were screened for concurrent conditions and underwent a 24-hour glucose curve to assess response to LI (median dose, 0.5 U/kg). A validated clinical scoring system (Diabetic Clinical Score) and patient and owner quality-of-life (QOL) assessments were serially evaluated at set time points over the study period. Following determination of glycemic responses to LI, patients were transitioned to twice-daily PZI at manufacturer-recommended starting doses (median dose, 0.5 U/kg). Glucose curves were serially assessed over a 12-week period, with PZI doses adjusted using a preinsulin and nadir glucose concentration-based protocol.

After the 12-week PZI period, diabetic cats had statistically significant reductions in serum fructosamine, lower clinical scores, and lower administered insulin doses; QOL scores were indicative of improved QOL. Although true duration of action is difficult to define when insulin is administered twice daily, 6 LI-treated cats were documented to have short durations of action (<9 hours); only 2 PZI cats were found to have an action duration <9 hours. All cats noted to have durations of insulin action <9 hours were found to experi-

ence improved durations when treated with the opposite formulation.

Periods of subclinical and clinical hypoglycemia were uncommon (15.8%) but were noted with both insulin formulations. Although the study was not designed to prove superiority of one insulin formulation, 22.7% of cats entered remission within 12 weeks of being transitioned to PZI, which suggests that PZI is a viable treatment option for diabetic cats.

... TO YOUR PATIENTS

Key pearls to put into practice:

- 1 PZI may result in improved diabetic outcomes in cats as compared with LI, which is likely attributable to a consistently more appropriate duration of insulin action.
- 2 In cases of poor duration of insulin action, cats may exhibit more favorable responses when transitioned to a different insulin type.
- 3 Transition to PZI can be safely accomplished using manufacturer-recommended starting doses, with subsequent dose titrations directed by serial glycemic monitoring of the patient's insulin response.

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References

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3. Nelson RW, Henley K, Cole C, PZIR Clinical Study Group. Field safety and efficacy of protamine zinc recombinant human insulin for treatment of diabetes mellitus in cats. *J Vet Intern Med.* 2009;23(4):787-793.