



## ABSTRACTS

### Hess L: Insulin glargine treatment of a ferret with diabetes mellitus. *J Am Vet Med Assoc* 241(11):1490-1494, 2012

A 7.5-year-old female spayed ferret was presented for weight loss despite a good appetite. Pancreatic insulinoma was presumptively diagnosed at the referring clinic on the basis of a single low blood glucose (BG) concentration without concurrent measurement of the blood insulin level. After the initial diagnosis, the ferret was treated with an unknown dose of methylprednisolone, administered subcutaneously (SC) every 30 days for 2 years. On physical examination, the ferret was thin (weight, 619 g), had muscle wasting, and bruised easily. Results of a serum BG analysis demonstrated hyperglycemia (BG concentration, 855 mg/dL; reference range, 63-134 mg/dL) and mild azotemia. Methylprednisone injections were discontinued, and the ferret was treated with a tapering regimen of oral prednisolone sodium phosphate (1.13 mg/kg q12h × 14 days, then 0.56 mg/kg q12h × 7 days). Shortly after the prednisolone administration was discontinued, the ferret was stronger but remained hyperglycemic (BG concentration, 535 mg/dL). Three weeks later (6 weeks after initial evaluation), the ferret's BG concentration was 840 mg/dL. A catheter was placed, and insulin glargine (0.5 U) was administered SC. The BG concentration was measured every 2 hours for a total of 32 hours. Fourteen hours after the first injection, insulin glargine was again administered (0.5 U SC). By hour 22 of the BG curve, the ferret's BG concentration started to rise steeply, and a third dose of insulin glargine (0.5 U SC) was injected into the patient. Two hours after the third insulin glargine dose, the ferret's BG concentration had decreased nearly to the reference range. The owner continued insulin glargine administration (0.5 U SC every 12 hours), monitoring urine dipsticks for the presence of glucose prior to the insulin administration. Seventy-seven days following the initial insulin administration, the ferret's weight was normal (731 g) and the BG level was within the reference range. No glucose was detected in the

ferret's urine up to 72 hours after administration of insulin glargine. The owner reduced the frequency of insulin glargine administration, administering only when the urine contained greater than trace amounts of glucose. Twelve months after the initial insulin treatment, the ferret was thriving, and the owner was administering insulin glargine at a dosage of 0.5 U SC every 1 to 3 days. Spontaneous diabetes mellitus is not common in ferrets, and the BG level in affected ferrets can be extremely difficult to regulate. Insulin glargine, a synthetic insulin analogue commonly used in humans, has a longer duration of action and lack of peak activity compared to ultralente insulin or neutral protamine Hagedorn insulin. Use of this form of insulin has improved glycemic control in diabetic cats, and the results of this case indicate that it may be effective in the treatment of diabetic ferrets.

### Kiupel M, Desjardins DR, Lim A, et al: Mycoplasmosis in ferrets. *Emerg Infect Dis* [Internet], 2012. <http://dx.doi.org/10.3201/eid1811.12007>, cited January 1, 2013

Although bacterial infections rarely cause disease outbreaks in ferrets, this report documents severe respiratory disease associated with a novel *Mycoplasma* species that affected 8,000 ferrets, 6 to 8 weeks of age 2009 to 2012. The disease, characterized by a dry, nonproductive cough, was first observed in the state of Washington, USA, in 6- to 8-week-old ferrets at a distribution center of a commercial pet vendor. Kits had been shipped to the distribution center every 2 to 3 weeks in groups of 150 to 200 from a commercial breeding facility in Canada. The kits had been vaccinated once for distemper at 5 weeks of age prior to arriving at the distribution center. Other clinical signs in some affected ferrets included hemoptysis, labored breathing, sneezing, and conjunctivitis. While nearly 95% of the ferrets were affected, the mortality rate was very low. Affected ferrets were selected from each shipment for diagnostic testing. Complete blood count and serum biochemical results were within reference ranges. Results of heartworm screening, polymerase chain reaction and serologic testing for distemper, and serologic testing for influenza were also negative.

Thoracic radiographs demonstrated a mild bronchointerstitial pattern, and cytologic evaluation of bronchoalveolar lavage (BAL) samples revealed few inflammatory cells. Affected ferrets were treated with antibiotics, bronchodilators, expectorants, nonsteroidal anti-inflammatory drugs, and nebulization. Clinical signs, with the exception of the dry cough, decreased. Some ferrets continued to cough for up to 4 years after infection. Postmortem lesions in 3 ferrets with severe respiratory disease were restricted to the lungs and included multifocal, tan to gray, firm nodules centered on airways. Histopathologic examination revealed a moderate bronchointerstitial pneumonia, severe bronchiole-associated lymphoid tissue hyperplasia, and marked narrowing of airway lumina. Immunohistochemical examination of the abnormal lung tissue, using antibodies against mycoplasmas, demonstrated strong labeling along the brush border of respiratory epithelial cells. *Mycoplasma*-like organisms were also observed on electron microscopy. Additional immunohistochemical staining detected no virus. Among 10 healthy ferrets euthanized and necropsied, no gross or histologic lesions consistent with *Mycoplasma* infection were seen. All BAL samples collected from 12 other affected ferrets were positive for fast-growing, glucose-fermenting mycoplasmas but negative for other bacteria. No bacteria or mycoplasmas were isolated from the 10 healthy ferrets. While analysis of polymerase chain reaction-derived amplicons from portions of the recombinant deoxyribonucleic acid and ribonucleic acid failed to identify a specific mycoplasma, the isolates bore strong similarities to *Mycoplasma molare* and *Mycoplasma lagogenitalium*. The findings indicate a causal relationship between the novel *Mycoplasma* species and this emerging respiratory disease in ferrets.

**Pignon C, Guzman DS-M, Sinclair K, et al: Evaluation of heart murmurs in chinchillas (*Chinchilla lanigera*): 59 cases (1996-2009). J Am Vet Med Assoc 241(10):1344-1347, 2012**

The purpose of this study was to determine the prevalence of heart murmurs in chinchillas and to determine whether heart murmurs were associated with underlying cardiac disease in this species. The retrospective study included review of medical records of all chinchillas seen at the Tufts University Foster Hospital for Small Animals between 2001 and 2009, the University of California-Davis William R. Pritchard Veterinary

Medical Teaching Hospital between 1996 and 2009, and the University of Wisconsin Veterinary Medical Teaching Hospital between 1998 and 2009. Any radiography on chinchillas was performed with physical restraint, sedation, or anesthesia, while both electrocardiography and echocardiography were performed with animals under manual restraint. A total of 260 chinchillas were examined at the 3 institutions during the study periods cited. A heart murmur was ausculted in 59 (23%) of the chinchillas. Radiography was performed on 72 chinchillas, 15 of which had a heart murmur; echocardiography was performed on 15 chinchillas, all 15 of which had a heart murmur; and electrocardiography was performed on 5 chinchillas, 1 of which had a heart murmur. Of the 15 chinchillas with heart murmurs that underwent echocardiography, 8 had abnormalities on echocardiograms; these included mitral regurgitation, tricuspid regurgitation, dynamic right ventricular outflow tract obstruction, left ventricular hypertrophy, and hypovolemia. Of the 8 chinchillas with echocardiographic abnormalities, 5 were examined radiographically; 2 of these had radiographic evidence of cardiomegaly. Echocardiographic abnormalities were 28.7 times as likely to be found in chinchillas with a heart murmur of grade 3 or higher than in chinchillas with no heart murmur and were 10.6 times as likely to be seen in chinchillas with a heart murmur of grade 1 or 2 than in chinchillas with no heart murmur. The findings suggest that the prevalence of physiologic heart murmurs in chinchillas is higher than in other species. Degenerative valvular disease was the most common echocardiographic abnormality diagnosed (5/8). The authors of the study recommend echocardiographic evaluation in chinchillas with a heart murmur, particularly older chinchillas with a murmur of grade 3 or higher.

**Eshar D, Bdolah-Abram T: Comparison of efficacy, safety, and convenience of selamectin versus ivermectin for treatment of *Trixacarus caviae* mange in pet guinea pigs (*Cavia porcellus*). J Am Vet Med Assoc 241(8): 1056-1058, 2012**

Mange caused by *Trixacarus caviae* is thought to be the most significant ectoparasitic disease and the most common cause of pruritus in guinea pigs. The purpose of this study was to determine the efficacy and safety of a single dose of topical selamectin for the treatment of naturally-occurring *T. caviae* infestation in pet guinea pigs and to compare the

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