

Anesthesia Options in Ferrets

This study investigated 3 drug protocols for ferrets using medetomidine/midazolam/ketamine (MMK) mixed in the same syringe. The variables were the dose of ketamine (7 or 10 mg/kg) and route of administration (IM or SC). Group IM07 received 20 µg/kg medetomidine, 0.5 mg/kg midazolam, and 7 mg/kg ketamine. Group IM10 received 20 µg/kg medetomidine, 0.5 mg/kg midazolam, and 10 mg/kg ketamine. Group SC10 received 20 µg/kg medetomidine, 0.5 mg/kg midazolam, and 10 mg/kg ketamine. The ferrets were monitored for 30 minutes (min) following drug administration.

Ferrets receiving IM drugs became recumbent sooner (2 ± 1 min) than those in the SC group (5 ± 2 min); 2 of 6 ferrets in the SC group were not entirely relaxed at 5 min. The depth of anesthesia was evaluated by loss of righting,

palpebral, ear, and interdigital reflexes. Mean arterial blood pressure was high in all groups for the first 15 min, but then decreased steadily. Pulse rates initially ranged from 202 to 213 beats/min but decreased to a mean of 183 to 189 beats/min by 30 min in all groups. All groups had significantly decreased saturated oxygen at 5 min compared with the 10-min data points. Over time, this parameter did increase in groups IM07 and IM10. Plasma concentrations of midazolam and ketamine were highest in the groups receiving IM drugs; no difference was noted in plasma medetomidine concentrations between the groups. Plasma drug concentrations were highest at 5 min, gradually decreasing over time. The authors concluded that MMK was a suitable combination for anesthetizing ferrets, but based on the degree of hypoxemia seen, oxygen administration is vital.

Commentary: The use of balanced anesthesia in exotic animal medicine has allowed safer regimens to be developed with reductions of individual drug doses in the combinations. While dexmedetomidine has largely replaced medetomidine in US small animal practices, the results of this report are still useful for practitioners and the doses reported can serve as guidelines for anesthetic induction in ferrets. A key point notes that while SC injection may reduce pain and stress associated with administration, IM injection is more effective for anesthetic induction in ferrets. In addition, supplemental oxygen should always be provided when an α_2 -agonist is used for sedation or anesthesia. While it is not specifically discussed, the fact that this combination includes 2 drugs for which antagonists are available makes it particularly attractive for short-duration or outpatient procedures in which a more rapid recovery is desirable.—*Dominique Keller, PhD, DVM*

Medetomidine/midazolam/ketamine anesthesia in ferrets: Effects on cardiorespiratory parameters and evaluation of plasma drug concentrations. Schernthaler A, Lendl CE, Hartmann K, et al. *VET ANAESTH ANALG* 38:439-450, 2011.



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