

Buccal Detomidine Gel in Dogs

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α_2 agonists have been shown to cause dose-dependent, biphasic cardiovascular responses.

In the Literature

Kasten JI, Messenger KM, Campbell NB. Sedative and cardiopulmonary effects of buccally administered detomidine gel and reversal with atipamezole in dogs. *Am J Vet Res.* 2018;79(12):1253-1260.

FROM THE PAGE ...

Sedation is often required for diagnostic procedures in veterinary medicine and may also be necessary to perform a thorough physical examination in some patients. Although many injectable sedatives are available, options for safe and effective orally administered sedatives are limited. α_2 -adrenergic receptor agonists are commonly used in various species, as they provide reliable sedation and analgesia and are reversible. However, α_2 agonists have been shown to cause dose-dependent, biphasic cardiovascular responses; activation of postsynaptic α_2 receptors results in an initial increase in blood pressure due to vasoconstriction and baroreceptor-mediated reflex bradycardia accompanied by decreases in cardiac output and stroke volume.^{1,2} In addition, a later, centrally mediated phase causes blood pressure to decrease.^{1,2}

Detomidine hydrochloride transmucosal gel has been shown to provide transient sedation in dogs and ferrets. Although the pharmacokinetics have been studied in dogs, there have been no previous studies investigating the cardiovascular and respiratory effects of detomidine gel in dogs or its reversal with atipamezole.

In this study of 8 healthy adult dogs, baseline measurements were obtained for arterial blood gas values, packed cell volume/total solids, and cardiac output; baseline sedation scoring was performed using a published scale.³ Dogs were given oral transmucosal detomidine hydrochloride gel (2 mg/m²), and hemodynamic and respiratory variables and sedation scores were serially measured at defined time points. Sedation was reversed with atipamezole (0.1 mg/kg IM), and all variables continued to be monitored for an additional 30 minutes.

Results show that detomidine gel administered OTM causes dose-dependent cardiovascular depression, as anticipated with other α_2 agonists. Cardiovascular changes began 30 minutes after

detomidine administration and persisted until reversal at 150 minutes after detomidine administration. Although systemic vascular resistance increased over this time, arterial blood pressure (systolic, diastolic, and mean) did not change significantly as compared with baseline values prior to administration of atipamezole. Sedation scores were higher at all time points as compared with baseline; maximum sedation occurred around 75 minutes postadministration. Mean total recovery time after reversal with atipamezole was 7.55 ± 1.89 minutes. Measurements of lactate concentration, arterial blood gas values, and renal values (measured at baseline and 7 days after investigation) suggest that the decrease in cardiac output and oxygen delivery was well tolerated in healthy dogs.

... TO YOUR PATIENTS

Key pearls to put into practice:

- 1** Detomidine hydrochloride gel at 2 mg/m² can provide reliable sedation in healthy dogs, and administration results in anticipated cardiovascular and respiratory effects observed with other α_2 agonists.
- 2** Atipamezole readily reverses the sedative and cardiovascular effects of detomidine hydrochloride gel in dogs.
- 3** Careful patient selection is key; α_2 agonists should be reserved for healthy, hemodynamically stable patients able to tolerate a decrease in cardiac output.

References

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- Kamibayashi T, Maze M. Clinical uses of alpha2-adrenergic agonists. *Anesthesiology*. 2000;93(5):1345-1349.
- Girard NM, Leece EA, Cardwell J, Adams VJ, Brearly JC. The sedative effects of low-dose medetomidine and butorphanol alone and in combination intravenously in dogs. *Vet Anaesth Analg*. 2010;37(1):1-6.

Research Note: Antibody Response to Feline Panleukopenia Virus Vaccination

The goal of this study* was to evaluate the antibody response in healthy adult cats within 28 days of feline panleukopenia virus (FPV) vaccination and evaluate factors associated with adequate antibody response. Results show that 64.3% of 112 cats had antibody titers of $\geq 1:40$ on day 0 and therefore were likely protected against FPV prior to vaccination. An adequate response to vaccination, defined as a 4-fold titer increase, was found in 48.3% of cats. Adequate vaccination response was associated with a lack of previous vaccination, lower day 0 antibody titer ($< 1:40$), and the domestic shorthair breed. Because cats with higher prevaccination titers (ie, $\geq 1:40$) had inadequate antibody responses to revaccination, the authors recommend measuring FPV antibody titers prior to vaccination.

Source

Bergmann M, Schwertler S, Speck S, Truyen U, Hartmann K. Antibody response to feline panleukopenia virus vaccination in cats with asymptomatic retrovirus infections: a pilot study. *J Feline Med Surg*. 2018. doi: 10.1177/1098612X18816463

*This study was funded and supported by Merial.

The authors recommend measuring feline panleukopenia virus antibody titers prior to vaccination.