Oral Transmucosal Buprenorphine for the Control of Pain in Cats with Chronic Gingivostomatitis

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The effects of buprenorphine are most consistent when the drug is administered via injection (ie, IV, IM [0.3 mg/mL], or SC [1.8 mg/mL]).[1,2]

In the Literature

Stathopoulou TR, Kouki M, Pypendop BH, Johnston A, Papadimitriou S, Pelligand L. Evaluation of analgesic effect and absorption of buprenorphine after buccal administration in cats with oral disease. *J Feline Med Surg*. 2018;20(8):704-710.

FROM THE PAGE ...

Managing pain in cats can be challenging due to medication safety concerns, difficulties in administering medications, and sparse availability of options. Buprenorphine is a partial μ agonist available as a long-acting injectable and has been approved for use in cats (1.8 mg/mL) and as a standard human-labeled injectable solution (0.3 mg/mL); the latter is approved for feline use in some countries but is considered extra-label in the United States.

The effects of buprenorphine are most consistent when the drug is administered via injection (ie, IV, IM [0.3 mg/mL], or SC [1.8 mg/mL]).[1,2] Several studies have demonstrated buprenorphine through the oral transmucosal (OTM) route to be a feasible option, but it is less well absorbed and more variable as compared with injection.[3-5] OTM administration is best used by owners at home or when injection is not practical. Numerous factors (eg, swallowing the drug, salivary pH resulting in drug ionization and lack of absorption, excessive salivation resulting in drug loss or swallowing, spitting out the drug) can affect drug absorption across oral mucous membranes. Most studies assessing OTM drug administration have used cats with healthy oral mucosa.

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However, inflammation and excessive salivation caused by gingival disease could affect the absorption of OTM buprenorphine.

The purpose of this prospective, randomized, crossover study was to assess the absorption and effects of OTM buprenorphine in cats with gingival disease. Six adult cats with chronic gingivostomatitis received placebo (saline) and buprenorphine (0.02 mg/kg OTM), with a 24-hour washout period between treatments. Pain scores and food consumption (used as part of the total pain score) were measured 30, 90, and 360 minutes after buprenorphine administration. Significant analgesic effects were noted at 30 and 90 minutes but not at 360 minutes. All 6 cats ate 30 minutes after administration of buprenorphine; only 2 ate 30 minutes after administration of saline. Bioavailability was estimated to be 19.5%, which is lower than OTM bioavailability in cats with healthy oral cavities (28.8%).

… TO YOUR PATIENTS

Key pearls to put into practice:

1. Although the authors state that peak drug variability was low, the data show concentrations varying from 274 ng/mL to 1621 ng/mL, approximately a 6-fold range in only 6 cats. The variability in a larger clinical population would be expected to be greater.
2. Although some of the pharmacokinetic data reported in this paper were inconsistent, this should not affect the clinical applicability of the findings as a whole.
3. OTM buprenorphine is a feasible short-acting analgesic (<6 hours) for cats with chronic gingivostomatitis, but IV or IM injection is preferred when appropriate.

References

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Research Note: **Monoclonal Antibodies for Treatment of Immunosuppressive Cancer in Dogs**

Immunotherapy, particularly with regard to cancer treatment, is currently an area of focus in research, but little is known about the function of immune inhibitor molecules in veterinary medicine. In this study, monoclonal antibodies against 2 immune inhibitory receptors (ie, canine programmed death-1 [cPD-1], canine programmed death ligand-1 [cPD-L1]) were identified. These antibodies bound to cells overexpressing cPD-1 and cPD-L1, effectively blocking binding between cPD-1 and cPD-L1. Each antibody was found to have a different blocking ability and a specific functional blockade. These newly generated antibodies may provide a novel approach to treatment of dogs with immunosuppressive cancers.

Source

Nemoto Y, Shosu K, Okuda M, Noguchi S, Mizuno T. Development and characterization of monoclonal antibodies against canine PD-1 and PD-L1. *Vet Immunol Immunopathol*. 2018;198:19-25.

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