

# capsules

## THE CURRENT LITERATURE IN BRIEF

### Hyperthermia & Perioperative Analgesia

Two studies have recently shown an association between hyperthermia and perioperative use of hydromorphone in cats. In 2006, a retrospective study examined records of 125 cats, age 2 months to 16 years, that were undergoing general anesthesia. Cats were stratified into 5 groups and were each given different drugs: acepromazine and no opioids; acepromazine and buprenorphine; acepromazine, buprenorphine, and ketoprofen; acepromazine and hydromorphone; and acepromazine, hydromorphone, and ketoprofen. Rectal temperatures were recorded before and after surgery in all cats and at 30-minute to 1-hour intervals up to 20 hours after surgery in some but not all cats. Rectal temperatures were decreased in the immediate postoperative period but were significantly elevated after surgery (especially between 2 and 5 hours) in cats that had received hydromorphone. In 2007, results of a prospective study on the effects of hydromorphone and/or ketamine were published; 40 cats having routine spay, castration, or declaw were monitored before and after surgery for hyperthermia. Cats were divided into 4 groups: Group 1 received hydromorphone-diazepam-ketamine; group 2 received hydromorphone and propofol; group 3 received medetomidine and diazepam-ketamine; and group 4 received medetomidine and propofol. Rectal temperatures were recorded before, during, and at 1-hr intervals for 5 hours after surgery. Similar to results in the retrospective study, at least 1 cat in each group had an elevated rectal temperature ( $>102.5^{\circ}\text{F}$ ) after surgery.

**COMMENTARY:** The take-home point of this article is that hydromorphone, a pure  $\mu$ -opioid agonist, is a satisfactory analgesic in cats, although nausea, vomiting, and dysphoria are reported with its use. In addition, most cats given hydromorphone ( $0.1\text{ mg/kg}$ ) will become significantly hyperthermic ( $>104^{\circ}\text{F}$ ). Therefore, my recommendation is to use hydromorphone cautiously in cats, monitoring rectal body temperature for at least 5 hours after anesthesia. Although most hyperthermic cats will return to normothermia with minimal treatment, if “heat stroke” temperatures ( $\sim 107^{\circ}\text{F}$ ) are approached, aggressive therapy (active cooling, acepromazine) should be instituted. An alternative approach is to use buprenorphine, a partial  $\mu$ -opioid agonist, for excellent analgesia in the feline patient.—*Rebecca Johnson, DVM, PhD, Diplomate ACVA*

Postanesthetic hyperthermia in cats: A retrospective comparison between hydromorphone and buprenorphine. Niedfeldt RL, Roberston SA. *VET ANAESTH ANALG* 33:381-389, 2006.  
Post-anesthetic hyperthermia in cats. Posner LP, Hollis N, Ludders JW. *VET ANAESTH ANALG* 34:40-47, 2007.