VETERINARY ANESTHESIA SPECIALISTS LLC
comfort for all creatures

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PRACTICAL SEDATION OPTIONS FOR CATS & DOGS

Pre-Hospital Gabapentin on Page 2!

Creating fear free veterinary visits is an important goal with positive benefits for health care and job satisfaction. Key strategies for minimizing fear in veterinary patients include: appropriate staff training, optimizing the hospital environment, using proper patient handling methods, and proactively modifying in-clinic behavior.

Fearful patients may also benefit from the administration of sedative medications. Use of sedatives is the primary focus of this article. Premedication is the administration of medications to achieve sedation and analgesia in advance of anesthesia. Premedication protocols can be used to facilitate procedures requiring sedation without anesthesia.

Pre-hospital administration of medications is an untapped opportunity for making visits to the vet less stressful for all involved. This is particularly true for fear-aggressive felines. The multi-step nature of protocols detailed here requires planning and client communication to implement, and the potential benefits to pets, staff and clients are many, including improved client satisfaction.

If there is one tip that you take away from this discussion, it should be Pre-Hospital Oral Administration of Gabapentin to reduce fear in cats and facilitate examination, blood draws and smoother transition to traditional premedication and anesthesia.

CAUTION: Patients with unknown health status, illness or respiratory compromise may experience adverse effects if sedated. Consider using non-chemical means of reducing fear and anxiety first in these patients such as Low-Stress Handling, pheromones, Clipnosis, etc.

SEDATION FOR FEAR FREE FELINES:
Box or mask inductions are a scary and hazardous approach to “sedating” the fearful feline. Box inductions should be avoided because they are 1) scary and stressful for patients, 2) dangerous to personnel (exposure to inhalants associated with numerous adverse health effects), and 3) dangerous to the patient (exposure to high levels of potent cardio-respiratory depressant, inability to monitor and support cardiovascular or respiratory system during induction, increased mortality).

Remember that most fractious cats are FEARFUL cats, so make necessary changes to patient handling and housing in order to minimize fear and anxiety for these patients. Do not overlook the possibility that pain may be contributing to a cat’s fear of being handled. Consider a multi-step sedation approach that includes an analgesic, detailed below, to facilitate pre-anesthetic sedation and help to avoid box inductions in cats.

MULTI-STEP SEDATION FOR FEARFUL FELINES:

Step 1: Pre-medicate the Cat at Home

Indications: fear-aggressive cats, high-anxiety cats. When indicated, at-home administration of sedative, analgesic or anti-anxiety medications can reduce the stress of travel, and decrease the cat's fear wind up upon arrival at the hospital. With the following protocols, the goal is to reduce stress; do not expect overt sedation. Caution: avoid pre-hospital sedation if you are not sure of the patient's health status, the cat is sick or has respiratory compromise.

At-home Sedation Options (choose one if pre-hospital sedation is indicated)

1. **Gabapentin** (50 – 100 mg per cat or 150 mg if big cat, PO, 2 – 3 hours before arrival)

Pre-Hospital Gabapentin

- Sprinkle the gabapentin powder on 1 TBS wet food and add flavor enhancer (eg, FortiFlora, tuna juice, etc).
- I do not have reservations about having a feline patient eat 1 TBS of wet food several hours prior to an anesthetic event.
- Dose for petite or geriatric cats: reduce dose to 50 mg per cat
- If early morning administration not possible, give dose at bedtime the night before, then give an additional dose in the morning as early before travel as possible
- NB: The sedative dose (≥20 mg/kg) is higher than the analgesic dose of gabapentin in cats (gabapentin for analgesia in cats = 5 – 10 mg/kg or 25 – 50 mg per cat, PO, BID)
- The use of pre-hospital gabapentin has been the single most effective tool for reducing fear and anxiety in healthy cats that I and many clinicians have used.
- Expect that cats will be ataxic and slow but not overtly sedate on this dose of gabapentin. Prepare owners for this!! The sedative effect lingers for ~12 hours and will contribute to woozy behavior – and risk of falling – after the cat has returned home.
- No stairs, no jumping, no driving for cats on sedative doses of gabapentin.
- Gabapentin has analgesic effects in cats, and reducing pain may be one of the ways it helps reduce fear.
- Gabapentin is typically used prior to sedation/premedication protocols (see below). Gabapentin does not replace in-clinic sedation/premedication protocols.

-or-

2. Buprenorphine (0.02 mg/kg, oral transmucosal) AND injectable Dexmedetomidine (0.04 mg/kg, given oral transmucosal) 45 – 60 min prior to examination/noxious stimulation (Porters et al. 2014 see reference below)

-or-

3. Buprenorphine (0.03 mg/kg, oral transmucosal, 60 – 90 min before travel/arrival)

-or-

4. Buprenorphine (0.03 mg/kg, oral transmucosal) AND injectable Acepromazine (0.05 – 0.1 mg/kg, oral transmucosal) 1.5 – 2 hours before travel/arrival

<u>These medications should not be relied upon as a sole pre-anesthetic protocol for cats</u> prior to anesthesia because feline patients may not be as sedate as desired for catheter placement, IV induction and smooth transition to inhaled anesthesia. Proceed with Steps 2 and 3 to minimize stress/anxiety and achieve adequate in-clinic and pre-anesthetic sedation.

Step 2: Minimize Stress for Fearful Felines Upon Arrival at the Veterinary Hospital
Communicate to the owner that transportation in a soft squeezable carrier (preferred) or clip-top carrier will facilitate low-stress handling. Move patient in carrier to a QUIET, DARK room immediately upon arrival. Consider covering the carrier with towels that have been sprayed with Feliway®. Steps 2 and 3 of Multi-step Sedation can and should be instituted even if Step 1 cannot be achieved – or if cat is not a good candidate for pre-hospital sedation. Steps 2 and 3 are appropriate for all cats, even those that are apparently "chill" cats. Many cats hide their stress and can have a short and unpredictable tolerance for scary procedures in the clinic.

Step 3: Low-Stress Handling to Achieve an IM Injection.
Use low-stress handling techniques in a quiet environment to perform a physical examination and restrain for injections or blood draw. For feline patients that are too fearful for safe handling, the following tips are helpful: With the soft fabric carriers it is often possible to gently squeeze the cat in the carrier and administer an IM injection through the carrier. For patients in clip-top carriers, slip a thick towel between the top and bottom halves of the carrier so that the cat may be restrained under the towel for an exam and IM injection.

Choose one of the following options for cats, combine medications in one syringe, **New** needle and administer IM.

- Opioid of choice (IM) plus Dexmedetomidine (7 – 10 micrograms/kg, IM) Here are some opioids and cat doses: Hydromorphone (0.05 – 0.1 mg/kg, IM) or Morphine (0.25 mg/kg, IM) or Methadone (0.3 – 0.5 mg/kg, IM) or Butorphanol (0.2 – 0.4 mg/kg, IM) or Buprenorphine (0.01 – 0.02 mg/kg, IM)
- Butorphanol (0.2 – 0.4 mg/kg, IM) + Midazolam (0.2 – 0.5 mg/kg, IM) + Acepromazine (0.05 mg/kg, IM)
- Butorphanol (0.2 – 0.4 mg/kg, IM) + Dexmedetomidine (3 – 7 micrograms/kg, IM) + Acepromazine (0.02 – 0.05 mg/kg, IM)
- Can add Alfaxan (2 mg/kg, IM give slowly) or Ketamine (1 – 2 mg/kg, IM) to one of these options to achieve heavier sedation, or as an additional IM injection if chemical restraint is inadequate after 15 minutes. May repeat the Alfaxan, if additional sedation needed.
- Avoid Midazolam in sedation protocol if patient is healthy/vigorous because of paradoxical excitation
- For geriatric or ill cats:
    - Butorphanol (0.2 – 0.4 mg/kg, IM) or Methadone (0.3 – 0.5 mg/kg, IM) + Alfaxan (1 – 2 mg/kg, IM)
    - Butorphanol (0.2 – 0.4 mg/kg, IM) +/- Midazolam (0.2 mg/kg, IM)

Watch the patient after drug administration and observe for excessive sedation, difficulty breathing, etc. Allow 10 – 20 minutes before restraining in lateral recumbency for medial saphenous IV catheter (much less stressful for the cat than cephalic catheter placement). If a cephalic catheter is desired but too stressful for the awake cat, use a medial saphenous catheter for IV induction and then place a cephalic catheter after induction.

Step 4: Intravenous Induction of (Brief) Anesthesia.
You will have more control over patient comfort and less stress with brief general anesthesia in older/ill patients as opposed to profound/heavy injectable sedation. Provide supplemental

oxygen and induce anesthesia with an IV induction agent via an IV catheter. I prefer propofol for induction because it is cleared more rapidly than ketamine and is associated with smooth recovery from anesthesia. Be ready to intubate and monitor blood pressure and respiratory function. Cats undergoing anesthesia should receive IV fluids and temperature support because these supportive treatments help clear the anesthetic medications and aid in preventing a prolonged rough/stressful recovery. A smooth recovery helps minimize fear in patients during their hospital stay.

If you have tried all of the above techniques and IV induction of anesthesia is not possible in one of your fearful/fractious feline patients, at the very least, premedicate the cat with an opioid +/- a sedative before it undergoes box induction. The premedication will reduce the amount of inhalant required for induction.

Summary of Sedation for Felines:
Oral gabapentin in cats – often without additional sedation/premedication – can be used by house-call and clinic-bound veterinarians to facilitate examination, blood draws, cystocentesis, blood glucose curves, ultrasound exams and additional injections. Pre-hospital gabapentin is most appropriate for fear-aggressive cats and cats with pre-existing pain.

MULTI-STEP SEDATION FOR FEARFUL DOGS

Step 1: Pre-medicate the Dog before it comes inside the Clinic

Pre-clinic sedation is important for those dogs who are anxious upon arrival at the clinic. As with cats, at home administration of sedative, analgesic or anti-anxiety medications can reduce the stress of a car ride, and decrease a dog's anxiety at the time of arrival at the hospital. Remember that pain exacerbates anxiety and anxiety amplifies the pain experience; treating anxiety will facilitate better pain control.

At-home or Pre-Clinic Sedation Options for Dogs

- Trazodone (5 – 15 mg/kg, PO, 1 hour before travel/arrival)
  - Starting dose based upon weight: ≤ 11 kg = 7 mg/kg; >11 kg = 5 mg/kg; may reduce to 3 – 5 mg/kg for large dogs (>25 kg)
  - Can be administered to dogs in the clinic; takes ~1 hour for effect in fasted dogs.
  - Trazodone has no analgesic properties.
  - Paradoxical excitation is uncommon, nevertheless trial dose at home is recommended.

-or-

- Dexmedetomidine (10 – **25**+ micrograms/kg, ORAL TRANSMUCOSAL, 20 min before visit)
  - Example: owners administer into cheek pouch while the dog is in your clinic parking lot
  - Will produce moderate to heavy sedation in very anxious dogs
  - For healthy, anxious and/or aggressive dogs
  - Dexmedetomidine has analgesic properties
  - Have patient observed continually after administration to make sure they don't lay down in a position that compromises breathing

-or-

- Gabapentin (20+ mg/kg, PO, 2 – 3 hours before travel/arrival) **+/-** injectable Acepromazine (0.025 – 0.05 mg/kg, given via oral transmucosal route, 30 min prior to travel)
  - Can give the Gabapentin the night before and repeat early the morning of hospital visit then add the Acepromazine oral transmucosal 30 minutes before travel.
  - This is just not as effective in dogs as it is in cats. I use oral gabapentin in small breed dogs.
  - Worth trying if you are reluctant to use Trazodone or Dexmedetomidine

-or-

- Phenobarbital (6 mg/kg, PO, 2 hours prior to travel)
  - A trial at home is recommended to determine appropriate dose and if this medication will produce adequate sedation.
  - No analgesic effect.

Step 2: In-clinic Sedation Options for Dogs

Use low-stress handling techniques to achieve IM injection for best results. The following protocols are for anxious but not aggressive dogs. Sedation of aggressive dogs is not addressed in this handout.

Choose one of the following options for dogs, combine medications in one syringe, **New needle** and **administer IM**.

- Butorphanol (0.2 – 0.4 mg/kg, IM) + Dexmedetomidine (5 – 7 micrograms/kg, IM)
- Butorphanol (0.2 mg/kg, IM) + Dexmedetomidine (3 – 5 micrograms/kg, IM) + Acepromazine (0.01 – 0.03 mg/kg, IM)
  - Combining an opioid with Dexmedetomidine *and* Acepromazine produces very reliable sedation.
- Hydromorphone (0.1 – 0.2 mg/kg, IM) *or* Morphine (0.5 mg/kg, IM) + Acepromazine (0.01 – 0.03 mg/kg)
- Butorphanol (0.2 – 0.4 mg/kg, IM) +/- Midazolam (0.2 mg/kg, IM) is appropriate for sedation of geriatric or ill patients
- Avoid Midazolam in sedation protocol if patient is healthy because of paradoxical excitation
- Alfaxan (2 mg/kg, IM) can be used in combination with an opioid +/- a sedative to produce moderate, short-lived sedation (~20 minutes) in small breed dogs. The volume of this medication makes it difficult to use IM Alfaxan in medium and large dogs. Most canine patients will have muscle tremors associated with IM Alfaxan administration.

A lateral saphenous catheter is often much less stressful for small dogs. They can be held on someone's lap (where they are used to being held) while another person slips a catheter into the back leg.

KEY TO SUCCESS:

In order for a pre-hospital sedation strategy to be successful, staff members need to be able to easily identify fearful/fear-aggressive cats and anxious dogs at the time the appointment is scheduled (ie, in advance of the visit). Strategize about ways to include this information in your medical records.

The multi-step sedation protocols outlined above may be administered to fearful pets once they have arrived at the hospital, but the oral medication options are most effective for reducing stress if they can be administered at home 2 – 3 hours prior to their vet visit.

I strongly encourage your team to implement Pre-Hospital Oral Administration of Gabapentin to reduce fear in cats and facilitate examination, blood draws and smoother transition to traditional premedication and anesthesia.

RESOURCES ON SEDATION AND LOW-STRESS HANDLING:

- Yin S. Low stress handling, restraint and behavior modification of dogs and cats. CattleDog Publishing, 2009.
- Brock N. Veterinary anesthesia update, 2nd edition updated 2016. New edition to be published 2018. www.nancybrockvetservices.com
- AAFP's Guideline publications on Feline Friendly Handling & Getting Your Cat to the Veterinarian:
- http://catvets.com/professionals/guidelines/publications/
- JAVMA News. Creating the cat-friendly practice:
- http://www.avma.org/onlnews/javma/nov10/101101a.asp
- The Feline Advisory Board's two manuals on Creating a Cat Friendly Practice:
- http://www.fabcats.org/publications/#cfp1
- CATalyst Council's Cat-Friendly Practice – short presentations for download:
- http://www.catalystcouncil.org/resources/health_welfare/cat_friendly_practices/

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Porters N, Bosmans T, Debille M, et al. 2014. Sedative and antinociceptive effects of dexmedetomidine and buprenorphine after oral transmucosal or intramuscular administration in cats. Veterinary Anaesthesia and Analgesia, vol 41, pp 90–96

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