EUTHANASIA TECHNIQUES

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Who Am I?

After graduation from Kansas State University, I completed a small animal rotating internship.

Practiced emergency medicine.

Practicing in-home euthanasia, hospice and palliative care since 2013.


Group Medical Director for Blue Pearl Pet Hospice.
AGENDA

- Pre-euthanasia anesthesia
- Critical/ill patients
- Aggressive patients
- Painful patients
- Intraorgan injections (so many more options than just IV!)
  - IH, IR, IP, IC
- What to expect
- Tips and Tricks
- Case examples
EUTHANASIA TRAINING

- Traditional veterinary education --> many times, euthanasia training is an after thought

- Additional training opportunities:
  - CAETA: Companion Animal Euthanasia Training Academy
DEATH HAS NO DO-OVERS

- Importance of giving a good death
- Everyone benefits (patient, family and provider)
- Maintain human animal bond in the end
- Respect for the pet and the family and the life they had together
THE BIG PICTURE FOR IV ALTERNATIVE EUTHANASIA

- SQ anesthesia in the examination room
- Fully asleep in 7-10 minutes (may take 10-15 minutes depending on patient and disease process)
- Intra-organ injection in the examination room or comfort room
- Peaceful death in 2-10 minutes
Drug concentrations:
Tiletamine 100 mg/mL
Ketamine 100 mg/mL
Acepromazine 10 mg/mL
Xylazine 100 mg/mL
Dexmedetomidine 0.5 mg/mL
Butorphanol 10 mg/mL
Midazolam 5 mg/mL
Alfaxalone 10 mg/mL

Not one cocktail is perfect for every patient.

I am sharing my favorite cocktail ingredients.
Anesthesia is given to every patient prior to euthanasia (IV or intraorgan). Usually given SQ (lessens the sting). For patients in distress, can be given IM. Goal: Loss of toe pinch sensation at 7-10 minutes; repeat the dose if they are not heavily sedate at 10-15 minutes. Prepare clients ahead of time for common anesthesia events such as muscle twitching and eyes remaining open. Discuss less common events as they occur.
ILL AND "READY" PATIENTS

• Dog Cocktail of Choice:
  • Tiletamine 0.1 mL/10 lbs PLUS
  • Acepromazine 0.1 mL/10 lbs PLUS
  • Butorphanol 0.1 mL/10 lbs PLUS
  • Xylazine 0.025 mL/10 lbs (ROUND down)

• Cat Cocktail of Choice:
  • Equal volumes of tiletamine, acepromazine, and butorphanol dosed by **weight** of the cat:
    • 0-10 lbs: 0.2-0.3 mL of each drug
    • 10-20 lbs: 0.3-0.4 mL of each drug
    • >20 lbs: 0.5 – 0.6 mL of each drug

Given SQ slowly and mixed in a single syringe
PAINFUL DOGS WITH OR WITHOUT SYSTEMIC ILLNESS

- HIGHER doses are commonly needed
- Gabapentin sent home with owner to give prior to appointment
- Oral premedication at time of appointment:
  - Dormosedan gel 0.2 mL/10 lbs OTM, wait 5-10 minutes, THEN
- Subcutaneous:
  - Tiletamine 0.2 mL/10 lbs PLUS
  - Acepromazine 0.2 mL/10 lbs PLUS
  - Butorphanol 0.2 mL/10 lbs PLUS
  - Xylazine 0.025-0.05 mL/10 lbs
ORAL SEDATION FOR NERVOUS, PAINFUL OR REACTIVE CATS

• Feline cues: tail flicking, tensing, hiding, have their ears pinned back

• Cats up to 15 lbs:
  • Tiletamine 0.1 mL, acepromazine 0.1 mL AND Fatal Plus 0.2 mL (or Euthasol 390 mg/mL)

• Cats greater than 15 lbs or young and metabolically healthy:
  • Tiletamine 0.2 mL, acepromazine 0.2 mL and Fatal Plus 0.2 mL (or Euthasol (390 mg/mL) 0.2 mL)

• Can mix with honey, Churu, or syringe directly in the very back of the mouth to prevent drooling

• Profound sedation in 5-10 minutes, may need to follow with SQ or IM injection

• Protocol also works well for small, reactive dogs***
TWO STEP INJECTIONS

First step: butorphanol 0.2mL PLUS acepromazine 0.2mL SQ

Wait 5-10 minutes

Second step: ketamine 0.1 mL/10 lbs (or) telazol 0.1 mL/10 lbs (or) both combined
FEARFUL OR AGGRESSIVE DOGS:
THREE STEP PROCESS

1) Pre appointment sedation
Oral sedation at home:
- Gabapentin 100 mg/kg PLUS
- Acepromazine 10 mg/kg PLUS
- Trazodone 20 mg/kg OR Phenobarbital 20 mg/kg
- Given 1-2 hours prior to appointment, can repeat dose if needed
- Instruct owners to feed in high value food or treats after fasting for a short period

2) Dormosedan gel: Dose 0.2 mL/10 lbs

3) SQ/ IM injection
- Tiletamine 0.2 mL/10 lbs PLUS
- Acepromazine 0.2 mL/10 lbs PLUS
- Butorphanol 0.2 mL/10 lbs PLUS
- Xylazine 0.025-0.05 mL/10 lbs
**EXTRA COCKTAIL INGREDIENTS**

- **Midazolam**: Will add in for neurologic patients or seizure patients
  - 0.2-0.4 mL/10 lbs
  - Can give IM if excessive sedation occurs with anesthesia

- **Alfaxalone**: Respiratory distress cat; pleural effusion
  - **SQ** protocol for a 10 lb cat:
    - Alfaxalone 2.5 mL (use 3 mL alfaxalone if >10 lbs) PLUS midazolam 0.2 mL PLUS butorphanol 0.2mL PLUS acepromazine 0.2mL

- **Vitamin B 12**: May reduce the sting of tiletamine
  - Mix in equal amount of B12 with total volume of sedation
  - Weigh pros and cons of increasing volume of injection depending on patient
EUTHANASIA TECHNIQUES

Going beyond intravenous
EUTHANASIA AGENTS OVERVIEW

Fatal Plus (pure pentobarbital)
- Less viscous
- Schedule II drug
- **Blue** in color
- Easier for intra-organ injections
  - AVMA approved for intraperitoneal injections without anesthesia - NOT recommended

Euthasol/Beuthanasia
(pentobarbital plus phenytoin)
- Viscous
- Schedule III drug due to addition of phenytoin denaturing compounds
- **Pink** in color
- Can ONLY perform abdominal injections with anesthesia first
- Phenytoin is cardiac depressant
HOW EUTHANASIA SOLUTION WORKS

- Causes death by severely depressing the respiratory, cardiac and vasomotor centers in the brain
- Why does it matter?
  - Owner perception of death
  - Owners understanding of death
- Rate of administration
PROS AND CONS OF INTRA-ORGAN INJECTIONS

**PROS**

- Fully unaware pet with anesthesia
- Stress free for the pet
- Takes the clinical feel away
- Pet can stay close to family, allows space while death occurs
- Less technically difficult for critically ill patients

**CONS**

- Longer appointment times
- Greater expense for larger pets
- Outside the “norm” → further explanation at times
Once under anesthesia, euthanasia solution given intraorgan

- Dogs: 3 mL/10 lbs
- Cats: 6 mL/CAT or 4 mL/10 lbs
  - Same dose for IR, IH, IC, IP
  - Same dose for Fatal Plus and Euthasol/Beuthanasia solutions
- Use 1.5 inch, 18 gauge needle for all pets except obese pets
IV ADMINISTRATION UNDER ANESTHESIA

Butterfly catheter

- Front limb:
  - Dorsal pedal
  - Cephalic

- Rear limb:
  - Dorsal pedal
  - Lateral saphenous
  - Medial saphenous (dog or cat)
INTRAHEPATIC (IH)
INTRARENAL (IR)
INTRAPERITONEAL (IP)
INTRACARDIAC (IC)

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TIPS FOR INTRAORGAN INJECTIONS

- Always place a blanket over the patient or use your hand to shield the syringe and needle
- For intrahepatic injections:
  - Give slowly and redirect your needle 1/3 of the way through
  - Can go between the ribs in larger dogs
- For intrarenal injections:
  - In cats: Isolate left kidney and brace against spine
  - For smaller patients, death is quicker than intrahepatic
- Can repeat dose in 15-20 minutes if needed
CASE EXAMPLES
BRACHYCEPHALIC PETS OR PETS WITH RESPIRATORY DISEASE

- First step SQ:
  - Butorphanol 0.2/10 lbs PLUS acepromazine 0.2/10 lbs
- Wait 5-10 minutes
- Second step SQ:
  - Tiletamine 0.1 mL/10 lbs, +/- midazolam 0.2 mL/10 lbs
- Alfaxalone on standby
- If respiratory distress is severe, proceed with IV euthanasia (propofol plus pentobarbital)
NEUROLOGIC OR SEIZING DOGS

- SQ Sedation:
  - Tiletamine 0.1 mL/10lbs PLUS
  - Butorphanol 0.2 mL/10lbs PLUS
  - Midazolam 0.2 mL/10 lbs PLUS
  - Xylazine 0.025 mL/10lbs

- Intrahepatic euthanasia

- Prepare the family for potential seizures with anesthesia

- Can give intranasal midazolam if seizing
CAT WITH PAINFUL ORAL SQUAMOUS CELL CARCINOMA (SCC)

- ASK the owner if the cat is better for injections or oral medication with this disease process (some patients are used to oral medications)

- Oral sedation:
  - tiletamine 0.2 mL PLUS
  - acepromazine 0.2 mL PLUS
  - euthanasia agent 0.2 mL

- SQ Injection:
  - tiletamine 0.3mL PLUS
  - acepromazine 0.3 mL PLUS
  - butorphanol 0.3 mL

- Intrahepatic injection: Fatal Plus 6 mL
QUESTIONS?

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