Advanced Pain Management in Dogs and Cats

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Agenda

More than NSAIDs and opioids
Pharmaceuticals
Non-pharmaceutical options
Case examples
Questions
I have no conflict of interest in this presentation.

Some of my recommendations include off-label usage of medications. These are used in the best interest of our patients and many times anecdotal in nature.
PAIN MANAGEMENT IS MORE THAN NSAIDS AND OPIOIDS...

BUT WE STILL NEED THEM!
NSAIDs:
- Staple for arthritis management
- Dogs: carprofen, meloxicam and grapiprant
- Cats: low dose meloxicam, robenacoxib
- Piroxicam and meloxicam: Anti-neoplastic properties

Opioids:
- Buprenorphine (most often used opioid in our practice for pain management)
- Still useful and necessary
- Want to strive for opioid sparing

Steroids:
- Prednisone, prednisolone, dexamethasone
- Anti-inflammatory of choice: Some animals with co-morbidities
Gabapentin

- Low and slow dosing
- Recommended dosing if naïve to the medication:
  - Start at 3-5 mg/kg per dose
  - Start with dosing once daily at night/bedtime
  - Increase to twice daily after 3-7 days depending on patient and pain level
- Side effects: sedation, ataxia
- Clients can be hesitant to try this medication again if their dog was prescribed a high dose and experienced sedation and/or ataxia
- Patient dependent
- Wide safety margin
NMDA Receptor Antagonists

How do they work?

When to use them?

Two drugs:

Amantadine

Ketamine
Amantadine

- Oral administration
- Best for chronic pain; would not choose for early OA
- Third in line for chronic arthritis after NSAID and gabapentin. May take 2-3 weeks to see a difference, but some respond faster (even within a few days)
- Can be used in conjunction with ketamine
- Starting dose: 3-5 mg/kg IN THE MORNING; then q12h after 3-7 days of morning dosing
- For severe pain cases, consider q8h
- Side effects: Diarrhea, agitation
Ketamine

- SQ administration; dogs and cats
- Subanesthetic dose; In addition to oral medications
- Can be used in conjunction with amantadine
- Dose recommendation: 0.25 - 0.5 mg/kg SQ every 1 to 4 weeks
- Side effects: Sedation, dissociation (uncommon at this dose)
  - GIVE BETWEEN THE SHOULDER BLADES
- Excellent for use in osteosarcoma patients, chronic IVDD, and end-stage OA
- Anecdotal!
Before and after ketamine injection
Naltrexone

- Opioid antagonist
- Good oral bioavailability
- Low dose
  - Recommend start at 0.1 mg/kg
  - Plumb's: No low dose recommendations
  - Once daily in the evening; can increase up to q8h
- Chronic neuropathic pain
- Used in people for chronic neuropathy
- Use for: chronic lick granulomas, degenerative myelopathy
- *New use in animals – stay tuned!
Acetaminophen/acetaminophen combinations

❖ Acute on chronic pain
❖ DOGS ONLY (never in cats – Tylenol is toxic for cats!)
❖ Osteosarcoma
❖ End stage arthritis
❖ Breakthrough pain
❖ For hydrocodone 10 mg/acetaminophen 325 mg:
  ❖ Our recommendation:
    ❖ Dose by the acetaminophen at 10 mg/kg PO q6-8h (up to 15 mg/kg is safe)
Solensia (frunevetmab)

- Monoclonal antibody therapy
- Once monthly injection
- Recommend at least 3 months of therapy prior to discontinuing
- EXPENSIVE
- Side effects: Itching at the injection site, possible worsening CKD
- *New therapy – so far we see positive results!
Librela (bedinvetmab)

Canine monoclonal antibody-anti-NGF

I have not currently used in any patients

Recent lecture shows that some are seeing positive results

Anyone used it yet??
Adequan (PSGAGS)

Disease modifying osteoarthritis drugs

Used at label dose of 4.4 mg/kg SQ twice a week for 3 weeks.

Off label use giving SQ, have owners give at home, increase compliance.

Off label feline use same dosing
Pharmacologic pain management strategies based on the level and type of pain present

- **Severe**
  - subanesthetic ketamine CRI
  - "pain vacation"

- **Moderate to Severe**
  - u-opioids, local analgesia, bisphosphonates

- **Moderate**
  - combination medications, TCAs, SSRI/sNRIs, glial cell inhibitors, Na channel blockers

- **Mild to Moderate**
  - NMDA antagonists, partial u-agonist, opiate-like agonist, mABs, SQ ketamine

- **Mild**
  - NSAIDS or piroxicam, anticonvulsants, acetaminophen, cannabinoids, adjunct therapies

- **No Pain**
  - herbals/nutraceuticals (start with prevention and delay onset)

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Alternative (non-pharmaceutical) modalities

- Supplements
- Assisi Loop (tPEMF)
- Laser therapy
- Acupuncture
- Massage
- Heat therapy
Case Examples

- Signalment
- History
- Diagnosis
- Medications and Therapies

Image: A dog wearing a blue life jacket is swimming in a pool.
**"Sweetness"**

- **Signalment:** SF Golden Ret.; 12y; ~50 lbs
- **History:** RF lameness 9/2022; diagnosis of OSA on 12/5/2022
- **Diagnosis:** Right scapular osteosarcoma
- **Elected hospice care on 12/13/2022**
- **Treatments and medications:**
  - Original plan from pDVM: Carprofen, gabapentin,
  - Additional medications: Amantadine, hydrocodone/acetaminophen, ketamine injections weekly
- **Euthanasia 5/1/2023**
"Zodiac"

- **Signalment:** 7y MN feline, 9 lbs
- **History:** Previous trauma – pelvis healed without surgical intervention
- **Diagnosis:** Chronic OA
"Zodiac" (cont'd)

- **Treatments and medications:**
  - Ongoing treatment for 2 years
  - Original plan:
    - Meloxicam 1-2 times per week, Adequan (twice per week for 4 weeks), gabapentin q12h, Cosequin daily
  - Current regimen:
    - Meloxicam two times per week, Cosequin daily, gabapentin AM, Antinol daily, Solensia q4weeks
Acute on chronic pain episode
"Ceilidh"

- **Signalment:** 12y, SF Golden Retriever, 85 lbs
- **Care duration:** 5/2021 --
  peacefully euthanized at home
  2/2023
- **History:** Hospice care
  elected after cancer diagnosis;
  euthanasia due to arthritis almost 2 years later
"Ceilidh" (cont'd)

- Diagnosis:
  - Hepatic carcinoma
  - Bilateral CrCL SX with secondary OA

- Treatments and medications:
  - Oral: grapiprant, amantadine, gabapentin
  - Acupuncture and laser therapy
  - Weekly SQ ketamine
"Luminou"

- **Signalment**: 18.5 y FS Ragdoll, 5.5 lbs
- **History**: Sought care for CKD in 10/2021 (video 12/2021)
- **Diagnosis**: CKD, aortic stenosis, OA
- Not easily medicated
- **Pain management plan**:
  - **Originally**: Adequan loading dose, laser therapy, transdermal gabapentin
  - **Currently**: Adequan weekly, laser therapy, Solensia monthly
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