

Pain Assessment

William Bush VMD, DACVIM (Neurology)

bbush@bvns.net



BUSH VETERINARY
NEUROLOGY SERVICE



Copper

11, FS, Mixed Breed



BUSH VETERINARY
NEUROLOGY SERVICE

Copper Video

- Presents for lameness, muscle atrophy, slow to rise and one owner is concerned about pain
- On exam, she yelps with rising, S1-S3 epaxial muscle palpation, rectal palpation of sacrum and tail extension
- WRITE down your pain score from 1-10 (worst) after considering history, exam findings and video.



Pain Score

- What was your pain score and why?
- How does it compare to that of owners, LVT and Resident?

Evaluator	Pain Score 1-10
Owner 1	6
Owner 2	8
LVT	9
Resident	9



Lets Lower Pain Score

- Achieve a diagnosis and specific therapy
- Capture breakthrough pain
- Multimodal chronic therapy



Radiographs Normal



Neuropathic Pain Treatment

- Use multimodal treatment with pain modulators +/- anti-inflammatories
- Have protocol to capture breakthrough pain
- Use non-pharmacologic treatments



Copper Treatment Plan

Capture Acute Pain

- 1 liter of fluid with 1 ml ketamine, 20 ml lidocaine at 4 ml/kg/hr with loading doses of each (0.5 mg/kg ketamine and 2 mg/kg lidocaine bolus)
- Fentanyl 2-5 ug/kg/hr
- Dexdomitor 1-2 ug/kg/hr
- Meloxicam 0.1 mg/kg, IV, SID

Chronic Pain Control

- Gabapentin 10 mg/kg, Q8
- Acetaminophen 325 mg / Codeine 60 mg – dose at 10 mg/kg of acetaminophen and 2 m/k, Q8-12 (1 tablet/ 30 kg)
- Amitriptyline 1 mg/kg, BID x 5 days, increase by 1 mg/kg increments to 4 mg/kg
- Meloxicam 0.1 mg/kg, SID



Pain Modulators

Drug	Starting Dose	Max Dose	Side Effects	Comments
Gabapentin	10 mg/kg, BID, PO	50 mg, TID	Sedation	May take 6 wks to assess First tier in people Calcium channel blocker
Amantidine	3-5 mg/kg, SID, PO	Unknown	None	Requires 3 weeks to work Proven in orthopedic pain NMDA antagonist
Amitriptyline	1 mg/kg, BID, PO	4 mg/kg, BID, PO	Sedation Vomiting Anorexia	First tier in people Tricyclic antidepressant



Anti-inflammatories

Drug	Starting Dose	Max Dose	Side Effects	Comments
Acetaminophen	10 m/k, SID, PO	15 m/k, TID, PO	NSAID-like	Easily combined with NSAID or steroid Tylenol 3 has 30 mg codeine Tylenol 4 has 60 mg codeine
Rimadyl	2 m/k, BID, PO	Same	Liver	Effective, monitor ALT
Meloxicam	0.1 m/k, SID, PO	Same	Kidney	Inexpensive, monitor USG
Prednisone	0.25 m/k, BID, PO	0.5 m/k, BID, PO	Muscle loss Liver (rare)	Best for inflammatory disease

* See NSAID and Steroid handouts for clients



Opiate Agonists

Drug	Starting Dose	Max Dose	Side Effects	Comments
Codeine	1 m/k, SID, PO	2 m/k, QID, PO	Sedation Anorexia Constipation	Readily available as Tylenol 3 &4
Fentanyl Patch	3 ug/k/hr, TD	Same	Dysphoria Sedation Anorexia	“Stuck with it’ Not used much at BVNS
Tramadol	2 mg/kg, BID, PO	10 mg/kg, QID, PO	Sedation	Second choice in people Weak opiate, SNRI Avoid with SSRI, amitriptyline Poor absorption from GI May take 2 weeks to work
Fentanyl	2 ug/k/hr	10 u/k/hr	Regurgitation Dysphoria Anorexia	Commonly used BVNS Hyperalgesic reactions Receptor down regulation
Hydromorphone	0.1 m/k/hr	0.1 m/k/h	Sedation Vomiting	Lasts 4 hours Best when combined with acepromazine or dexdomitor

Other

Drug	Starting Dose	Max Dose	Side Effects	Comments
Dexdomitor	1 ug/kg/hr 2 ug/kg,/IV	4ug/k/hr 5 ug/kg/iv	Bradycardia Sedation	Pain and anxiety Perioperative miracle drug Fantastic when combined with opiate
Ketamine	100 mg/liter in perioperative fluids 10 ml/kg/hr, 17 ug/kg/hr 3 ml/kg/hr, 5 ug/kg/hr		None	NMDA antagonist for peri-operative period Consider loading of 0.5 mg/kg
Lidocaine	400 mg/liter in perioperative fluids 10 ml/kg/hr, 4 mg/kg/hr 3 ml/kg/hr, 1.2 mg/kg/hr		None	Sodium Channel Blocker Prokinetic and analgesia Load with 2 mg/kg bolus
Methcarbamol	30 m/k, PO, TID	50 m/k, TID	Mild sedation Salivation Vomiting	For muscle spasm
Diazepam	0.25 m/k, PO, TID	0.5 m/k, PO, QID	/Mild sedation	For muscle spasm



Anxiety

Drug	Starting Dose	Max Dose	Side Effects	Comments
Acepromazine	0.02 m/k, IV 0.01 m/k/hr 1 m/k, PO	0.1 m/k, IV 0.1 m/k/hr 2 mg/kg, PO	Prolonged sedation	Reduces chance of seizure when given post-ictal Combine with opiate at night
Trazadone	2 m/k/PO, BID	5 m/k/PO, BID	Anxiety/ sedation	SARI (increases serotonin) Works quickly Possible serotonin sickness

Serotonin sickness: vomiting, diarrhea, seizures, hyperthermia, hyperesthesia, depression, mydriasis, vocalization, death, blindness, hypersalivation, dyspnea, ataxia/paresis, disorientation hyperreflexia, and coma (Wisner 2006)

- Uncommon to rare and above signs listed in descending order



Non-Pharmacologic Treatment

- Attention or comforting from staff (decreased cerebral recognition)
- Cold or warm compress, massage, ROM
- TENS? Laser?





**BUSH VETERINARY
NEUROLOGY SERVICE**



**BUSH VETERINARY
NEUROLOGY SERVICE**