Using methadone alongside other opioids

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Why might we want to use methadone alongside other opioids?

1. Multi-modal analgesia strategies
e.g. using methadone with epidural morphine

2. Using methadone as a “rescue” analgesic when pain control is inadequate after other opioids

3. Using methadone in dogs treated with transdermal fentanyl solution (Recuvyra™)
Multi-modal analgesia strategies

- Using different classes of analgesic drugs or different analgesic techniques in combination

- “Gold standard” approach to analgesia in human and veterinary medicine

- Ensures that quick onset and long duration analgesia can be provided with minimal side effects
Analgesia to repair an open femoral fracture
Multi-modal technique: premedication

Full $\mu$ agonist opioid
Methadone

Alpha 2 agonist
Dexmedetomidine

NSAID
Carprofen
Intra- & post operative analgesia

- Epidural morphine
- Epidural bupivicaine
- Methadone @ 4 hour intervals
- Carprofen
Why perform an epidural with morphine & bupivacaine?

• Will provide a long duration of analgesia – up to 24 hours
• Will reduce the MAC of isoflurane by 20-30%  
  – CVS & respiratory system benefits
• Will obtund the systemic stress response to surgery  
  – maintain physiological stability
• Will allow lower doses of methadone to be given post-operatively while maintaining good analgesia  
  – reduce sedation & increase mobility
Can methadone be administered epidurally?

Not recommended to give preservative containing solutions epidurally  
Shorter duration of action than morphine epidurally  
(approx 8 hours)
How does epidural morphine affect dosing with methadone?

• Epidural morphine is absorbed slowly systemically
  – remains in the epidural space / dorsal horn of the spinal cord
  – exerts a profound analgesic effect

• Premedicate with the same dose of methadone (0.2-0.3 mg/kg)
  – good sedation
  – reduce dose of induction agent
  – time delay before epidural morphine is fully effective
Post-operative methadone

• Expect to achieve good analgesia with a lower dose of methadone than would be required otherwise
  – 0.1-0.2 mg/kg IV for the 1st 24 hours after surgery

• Ensure that pain is scored regularly every 2-4 hours
  – the effect of epidural drugs can be patchy
  – be prepared to increase systemic methadone dose if breakthrough pain
Using methadone as a “rescue” analgesic after other opioids

Methadone can be titrated to effect. Repeat doses of 0.1 mg/kg (IV) until the patient is comfortable.
The patient has been treated with buprenorphine and is still painful. What are my options?
1. Administer another dose of buprenorphine
   1. the “bell-shaped” dose response curve for buprenorphine may not be relevant in dogs & cats
   2. if analgesic antagonism occurs it will be at a much higher dose than those used clinically
   3. if the patient is experiencing moderate to severe pain then a full μ agonist is likely indicated
Will methadone be effective after buprenorphine?
• Recent data in humans suggest that full µ agonists are efficacious after buprenorphine.
• Recent data suggests that methadone administered as a rescue analgesic to dogs premedicated with buprenorphine is efficacious [Hunt et al. 2013].
• No requirement to wait a specified time period after buprenorphine before administering methadone.
• Titrate methadone to effect in 0.1 mg/kg increments IV.
Using methadone in dogs treated with transdermal fentanyl solution (Recuvyra™)

- Recuvyra is licensed in dogs for peri-operative analgesia: 96 hour duration of analgesia
- SPC states administer Recuvyra 2-4 hours before surgery
- Recuvyra (fentanyl) is the only opioid administered in the peri-operative period
Clinical experience suggests that the majority of dogs treated with Recuvyra do not require additional opioid analgesia within the 96 hour period.

However, a minority of dogs may require additional analgesia to treat breakthrough pain.
Methadone can be used as “rescue” analgesic in dogs treated with Recuvyra. Effects will be additive. Opioid overdose is very unlikely if there is a clinical requirement for additional analgesia. Titrate to effect in 0.1 mg/kg increments IV.
Recuvyra can be administered after methadone
Ensure adequate opioid analgesia with methadone while Recuvyra takes effect

I premedicated the dog with methadone & now I want to administer Recuvyra for post-operative pain relief
Conclusions

• Treat each patient as an individual and assess patients regularly for signs of pain

• There is no “one size fits all” analgesia plan: opioids may need to be used together to achieve adequate analgesia in an individual patient

• Methadone can be used very flexibly with buprenorphine and fentanyl in clinical patients