Should We Be Using Preoperative Gabapentin/Pregabalin?

Jay Motley
Department of Anesthesiology
Medical University of South Carolina
Postoperative Pain

- Prevents Early Mobilization
- Increases Side Effects Related to Treatment
- Lengthens PACU Stay
- Lengthens Hospital Stay
- Increases Healthcare Costs
- Patient Dissatisfaction
Postoperative Pain

- Prevention and Treatment

- Allows for earlier mobilization, better care for patients, higher patient satisfaction

- Opioids – mainstay of treatment
  - Many drawbacks

- Moving toward multimodal treatment
  - Less side effects
  - Better pain control
Postoperative Pain - Treatment

- Opioids

- NSAIDS
  - Oral/IV
  - COX2 Inhibitors

- Antiepileptics
  - Gabapentin/Pregabalin

- Tylenol

- Anti-depressants
Postoperative Pain - Prevention

- Regional anesthesia
  - Prevention and Treatment

- Opioids

- Antiepileptics
  - Gabapentin/Pregabalin
Gabapentin/Pregabalin

- Anti-epileptics
  - Anti-allodynic, Anti-hyperalgesic and Anxiolytic effects

- Structurally similar to GABA

- α2-δ subunit of voltage gated Ca++ channels in CNS
  - Reduce release of excitatory neurotransmitters

- Minimal metabolism
  - Excretion by the kidneys
Benefits

- Reduces Postoperative Opioid Consumption

- Decreased Pain Score - VAS (0 – 100)
  - Early – 6 h
    - More than late
  - Late – 24 h

- Very Few Side Effects

- Few Drug Interactions
Benefits

- Reduction in N/V
- Reduction in Pruritis
- Easy administration
  - One time dosing
  - PO
Drawbacks

- Most common side effects
  - Sedation
  - Dizziness
- Adds another task in holding
- Must be administered 1-2 hours preoperatively
- Cost?
Reduction in post-operative morphine requirements with gabapentin vs. placebo (0-24 hours)
Optimal Timing and Dosing

- **Timing**
  - Most suggest single dosing 1-2 hours pre-operatively
  - Likely no increased effect from repeat dosing

- **Dosing**
  - Gabapentin – 300 mg to 1200 mg single dose
  - Pregabalin – 150 mg to 600 mg single dose

- May be even more effective when combined with Cox 2 inhibitors
Pregabalin vs. Gabapentin

- Peak plasma concentration in 1 hr
- Equal efficacy with less dose
- Plasma concentrations increase linearly with increasing dose
- Greater potency in pain and seizure d/o

- Peak plasma concentration 2-4 hours
- Equal efficacy with higher dose
- Plasma concentrations increase non-linearly with increasing dose
- Lesser potency in pain and seizure d/o
Limitations

- Best option - Gabapentin or Pregabalin?
- Unknown dosage that gives maximal effectiveness with least side effects
- Cost data unknown
- Procedural Differences
  - Shoulder Arthroscopy?
- Questionable dosing schedule
- Further endpoints need research
Conclusions

- Single dose preoperative gabapentin and pregabalin result in:
  - Decrease in 24 hour opioid consumption
  - Decrease in postoperative pain intensity
  - Decrease in nausea and vomiting
  - Increase in sedation

- Single dose preoperative gabapentin or pregabalin should be administered to most surgical patient upon arrival to holding.
References