Anesthesia Management During Current Drug Shortage Crisis

Drug Shortage

- Sandoz scale back in some injectable medications b/c quality concerns by the FDA
- Major or only supplier for many of our drugs
- Oral medications not effected
- Sunday – fire in the boiler room of the Boucherville plant
- All production suspended Monday
- Health Canada fast-tracking new sources of medications

Drugs in Short Supply

- Protamine
- Opioids
- Midazolam
- Ondansetron, Gravol, Benadryl, Stemetil
- Atropine, Ephedrine, Phenylephrine
- Neostigmine
- Rocuronium
- Naloxone, Flumazenil

Strategies – Oral Medications

- Sodium naprosyn 275 mg oral tablets
- Dimenhydrinate oral tablets, liquid, and suppositories
- Ondansetron ODT (oral dissolving tablets) 4 mg and oral solution 0.8 mg/mL
- Morphine and hydromorphone tablets, liquid, and contins
- Furosemide oral tablets
- Diphenhydramine oral tablets

Strategies – Reduce Waste

- Only draw up what you need
- Ephedrine - 2mL of 5mg/mL
- Phenylephrine - 5mL of 100mcg/mL
- Smaller prepared drugs for C5 and arrest bag
- No longer draw up atropine
- Prepared syringes of drugs at HDH
- No PCA unless no other option
- Manage multi-dose vials to allow re-use

Strategies – Reduce Use

- Regional anesthetic techniques
- Avoid muscle relaxants where possible
- Use alternatives eg cisatracurium
- Consider reducing elective procedures eg elective cardiac surgery

Strategies – Manage supplies

- Protamine – locked in narcotic cupboard
- Reduce stock of rocuronium on carts
- Stock cisatracurium (25 days out of fridge)
- Reduce stock of ephedrine, phenylephrine, and atropine stocked on the trays

Drug Dosages Stocked in OR areas

Cisatracurium:

- Intubating dose 0.1 mg / kg
- Infusion 1-3 mcg/kg/min
- Lasts 20-35 minutes

Sodium Naprosyn: 275 mg tablets

Ondansetron: ODT 4 mg tablets, 0.8 mg/mL

Morphine contin: 10 mg tablets

Hydromorph contin: 3 mg tablets

Acute Pain Management

Life without PCA Pumps

TJA

- Pre-op:
  - Naproxen 550mg PO
  - Acetaminophen 975mg PO
  - +/- pregabalin 25-50mg PO
  - +/- long acting opioid
    - HM Contin 3mg or MS Contin 15mg PO
    - ***limited naloxone***

TJA

- Intra-op
  - SA with epimorph but use remainder of vial in PAI
  - Limited phenylephrine and ephedrine so consider pre-loading with colloid or crystalloid

TJA

- Post-op:
  - Add to APMS as per usual
  - Morphine 2.5-15mg po q2-4h prn
  - HM 0.5-3mg po q2-4h prn
  - Write **“please offer to patient q__h”**
  - Maximize co-analgesia where possible

TJA

- Use PCA order sheet
  - Strike out PCA part and write opioid orders
  - Strike out naloxone –write diphenhydramine 25mg q4h po prn
  - Strike out IV route for ondansetron and prochlorperazine IV – write PO

OPEN General Surgery, Urology, Gyne Oncology

- Pre-op
  - Naproxen 550mg PO
  - Acetaminophen 975mg PO
- Intra-op
  - Epidurals as per usual
  - Consider epidural for laparoscopic procedures with substantial incision eg nephrectomy
- Post-op
  - As per usual

Other Gyne/Urol/GS

- Pre-op
  - Naproxen 550mg PO
  - Acetaminophen 975mg PO
  - Consider pregabalin 25-50mg PO
  - Consider long acting opioid
    - HM Contin 3mg or MS Contin 15mg
  - Consent for TAP blocks

Other Gyne/Urol/GS

- Post-op
  - Add to APMS as per usual
  - Use PCA orderset
    - Strike out PCA part and write opioid orders
    - Strike out naloxone –write diphenhydramine 25mg q4h po prn
    - Strike out IV route for ondansetron or prochlorperazine IV – write PO
  - Maximize co-analgesia

Thoracics

- Thoracotomies
  - Pre-op – as per usual
  - Intra-op – epidural
    - Attempt to limit solution changes or other wastage
  - Post-op – as per usual
  - Fluid restriction will be problematic as phenylephrine and ephedrine is limited…discuss absolute need with surgeon

Thoracics

- VATS
  - Consider epidural if you think pain management will be problematic
  - Maximize co-analgesia pre-op and post-op

Other problems

- High opioid users for elective procedures requiring >12hrs of NPO
  - ?consider rescheduling
- Open pre-op discussions including challenges wrt drug shortages
- Maximize regional techniques