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 contents
- 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