Putting It All Together

Opioid Free Techniques:
Interactive Case Presentation(s) with Discussion Session

Disclosure

- *I have no financial relationships with any commercial interest related to the content of this activity.*
- *I will likely discuss some off-label use during our presentation..*

Session Objectives

- The session will start with a case presentation from the speaker, detailing 1 -2 patient care vignettes highlighting opioid-sparing or opioid-free techniques. Interaction during those case presentations, and in the discussion to follow will be the focus after the vignettes
  - Provide 1 – 2 patient vignettes that pull together the principles of opioid-sparing or opioid-free techniques for analgesia during anesthetic care
  - Encourage audience participation for:
    - Discussion of the patient vignette(s) presented
    - Sharing of personal experiences in multimodal analgesic techniques by the audience members
    - Thoughts on the opioid crisis in our country

Review: Preop Risk Factors for Chronic Pain

- Preop pain and anxiety
  - Especially if pain > 1 month duration
- Repeat surgery, traumatic acute injury
- Surgical factors
  - Approach (invasiveness)
  - Near nerves or plexus
  - Length of surgery
- Planned anesthetic technique
- Female gender
- Younger age in adult populations
- Genetic vulnerability (SNPs)… cortisol reactivity
- Poor analgesia, especially in the first 24 hours
  - *Overall (median) severity of pain over the first 7 days more predictive than single max pain score*
- Rad Rx to affected area
- Neurotoxic chemo Rx
- Depression/Anxiety
- Psychological, genetic vulnerability

Review: Chronic Pain Risk Mitigation

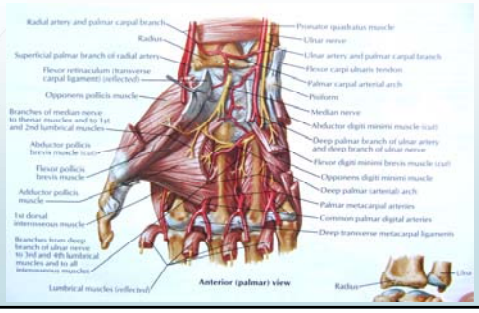
- Alleviate to the extent possible preop anxiety, stress and pain
- Intraoperative Techniques
  - Surgeons may be able to choose less invasive, nerve-sparing techniques
  - Central neuraxial techniques
  - Peripheral/Regional blockade/TAP blocks, etc.
  - Infiltration of local anesthetics
- Use of multimodal co-analgesics
- Maintenance of preop regimen if existent
- *Postop "rescue" blocks*
- *Postop "rescue" infusions*

Case Discussion 1

- 52 year old female in for complex wrist and hand surgery, right side
- Hx of severe CRPS-Causalgia s/p left carpal tunnel decompression, 2 years ago
- HTN, dyslipidemia, smoker
- Surgeon states he is worried about possibility of CRPS post-op

- Patient refuses to have a regional anesthetic
- Surgeon has patient preoperatively on:
  - Lyrica
  - Vitamin C regimen: 1000 mg x 55 days
  - NSAIDs have been stopped 1 week earlier but will be re-instituted (Celebrex)
  - Ofirmev given in PAPA

Nerves of the Wrist



Case Discussion 1

- LMA general: induction with no narcs
  - Propofol, lidocaine 1.5 mg/kg, ketamine 20 mg, esmolol 30 mg
  - Sevoflurane maintenance with 50% N2O

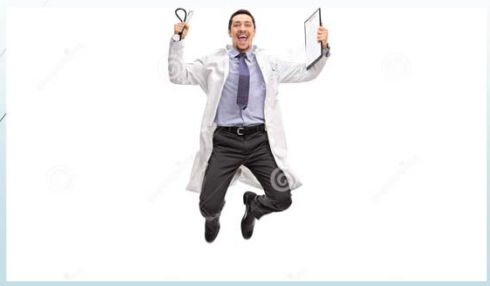
  - Magnesium 3 gm
  - Ketamine re-dosed 10 mg q 30" (up to max of 0.5 mg/kg)
    - Attempt to have no dose within last 30 minutes of case
  - Lidocaine gtt (2 mg/kg/hr): weaned off in PACU after first awake assessment
  - Toradol 30 mg IV near the end of the case
  - Surgeon infiltration of small amount of bupivacaine at the end of the case

Case Discussion 1

- She woke up pain-free and expressing amazement
- He sent her home on alternating PO Tylenol and Celebrex, continued Vitamin C and Lyrica, tramadol for breakthrough, and his cell number ☺
- Surgeon "promised" to follow-up with me after each appointment
- He was excited to try an opioid-free regimen

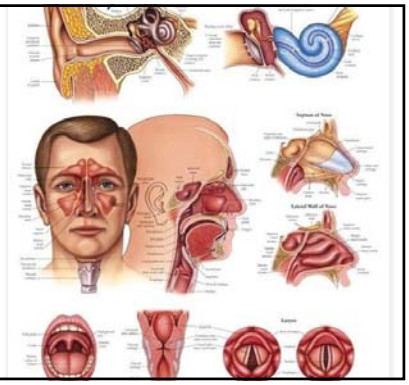
The next time the surgeon followed up…

The second time the surgeon followed up…



Sample Case 2
Trial at ENT Outpatient Center

- CRNA colleague in Florida reported some trial results for OFA techniques at an ENT Outpatient Surgical Clinic
- Surgical services at Outpatient Center
  - ENT (healthy older peds and adult)



Sample Case 2
Trial at ENT Outpatient Center

Premedication

- Oral acetaminophen 1000 mg and gabapentin 300 mg
- No routine use of premedication (midazolam):hoping to ensure earlier home readiness

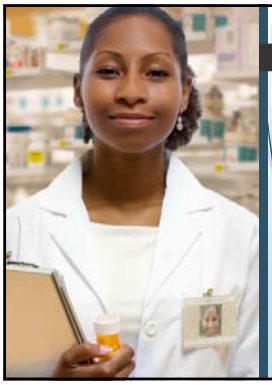
Induction

- Standard monitors and preoxygenation
- Bolus of ketamine 5 – 15 mg followed by a mixture of Propofol 3 – 6 mg/kg + lidocaine 60 mg until the loss of eyelash reflex.
- If GLMA, then gently place LMA.
- If GETA, after successful mask ventilation, then SCh 1 – 1.5 mg/kg to facilitate endotracheal intubation.

Sample Case 2
Trial at ENT Outpatient Center

Maintenance

- After the airway is secured, sevoflurane is started for inhalational anesthesia and continued throughout the case.
- Start an infusion of magnesium 30 - 60 mg/kg and lidocaine 1.5 mg/kg (these can be mixed in a 100cc bag of NSS) and infuse over 30 - 60 minutes
  - If case is <30 minutes, then use half the magnesium dose
  - If case >120 minutes, then add another infusion of Lidocaine 1.5 mg/kg and 30 mg/kg Magnesium and infuse over 30 - 60 minutes



Procedural Note…!

- The mixing of medications is governed under the U.S. Pharmacopeia Convention (USP), which has been accepted by CMS
- USP Chapter 797 allows clinicians to mix up to 3 agents together (*including the diluent*) in room air for administration within 1 hour.

Sample Case 2
Trial at ENT Outpatient Center

- Add boluses of ketamine in 5mg aliquots, keeping the dose between 0.3 - 0.5 mg/kg/hr
- Allow the patient to return to spontaneous ventilation
- Administer routine anti-emetic prophylaxis with ondansetron 4 mg and dexamethasone 10 mg (antiemetic and adjunct anti-analgesic)
- Administer Ketorolac 15 - 30 mg/kg if the surgeon permits.
  - Lower dose for age >70 or renal insufficiency
- Glycopyrrolate may be needed for bradycardia.
- Ephedrine or neosynephrine may be needed for hypotension.

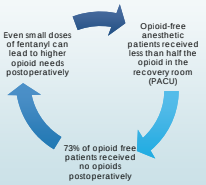
Sample Case 2
Trial at ENT Outpatient Center

- Patient is extubated deeply, as appropriate, (or the LMA is removed)
- Transported to PACU with an oral airway, as necessary
- Patients open their eyes spontaneously about 15 minutes after PACU arrival.
- Patients are offered oral intake when awake.
- 65% of our patients require no further medication in the PACU.
- 10% of patients have nausea that is resolved with ondansetron 4 mg.
- 1.5% of our patients have refractory nausea that requires addition antiemetic, such as Phenergan 6.25 - 12 mg and/or
- Scopolamine patch added early if history of motion sickness

Sample Case 2
Trial at ENT Outpatient Center

- Oral analgesics are given for complaint of moderate pain including ibuprofen 800 mg, or Vicodin, or Percocet as prescribed by surgeon.
- *Significant complaint of pain can be treated with infusion(s) of magnesium 30 mg/kg and/or Lidocaine 1.5 mg/kg in 100 mL NSS over 15 - 20 minutes.*
- In very rare cases, intravenous Dilaudid is titrated to effect.
- Patients are ready for discharge home 25 -75 (average 45) minutes after PACU arrival.

Sample Case 2
Trial at ENT Outpatient Center



Anesthesia	Intraoperative Fentanyl ug	PACU opiate use (morphine equivalent)
OA	170.4+-14.6	4.5+-6.1
OSA	18+-2.6	5.03+-6.5
OFA	0	2.05+-4.2

Sample Case 2 : ENT Outpatient Center
15 months into OFA Trial

Preoperative oral acetaminophen 1000mg

Intraoperative intravenous infusion:

Magnesium 60mg/kg,

Lidocaine 1.5 mg/kg,

Ketamine 0.3mg/kg,

With Sevoflurane, Decadron 10 mg and

Zofran 8 mg, ketorolac if surgeon ok's

Decrease magnesium dose for age>65 or renal insufficiency

Magnesium will prolong nondepolarizing muscle relaxants. Contraindicated in renal failure and myasthenia gravis

- Three surgeons continue oral magnesium and gabapentin postop.
- They went from prescription for #50 hydrocodone to #15 hydrocodone pills and recently decreased to #5 pills.
- Phone calls are decreased

Patients	Nausea in PACU	No pain meds in PACU
1009	10.5%	64%

Everyone was Happy…!

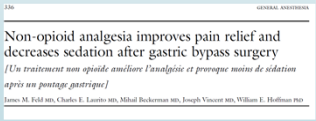
A Mention for Homeopathic or Herbal Preparations

Sample 3
Small Sample Study on Gastric Bypass Patients

30 Obese gastric bypass (dosages based on ideal BW)

Two Regimens

- Sevoflurane + Fentanyl 50ug bolus up to 6ug/kg OR
- Sevoflurane + non opioid regimen of
  - Ketorolac: 30mg IV
  - Lidocaine: 100mg bolus;
    - 4mg/min first hr, 3mg/min 2nd hr, 2mg/min till end of case
  - Ketamine: 0.17 mg/kg/hr max dose 1mg/kg
  - Magnesium sulfate: 80mg/kg total
  - Methylprednisolone60mg
  - Clonidine: IV 300-500ug



Non-opioid analgesia improves pain relief and decreases sedation after gastric bypass surgery

[Un traitement non opioïde améliore l'analgésie et provoque moins de sédation après un pontage gastrique]

James M. Feld MD, Charles E. Lucrito MD, Mihail Beckerman MD, Joseph Vincent MD, William E. Hoffman PhD

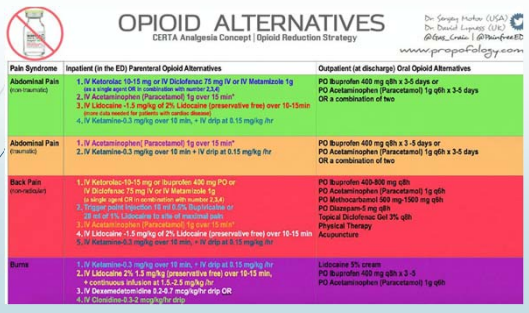
Sample 4
Anecdotal Regimen from Message Board

Induction

- Propofol 150 - 250 mg
- Ketamine 50 mg
  - Plus/minus 50 mg on incision
- Volatile agent + N_2O
- Magnesium 50mg/kg
- Lidocaine 2 mg/kg/hr
- Treat BP/HR w/ esmolol or clonidine
- Plus/minus peripheral nerve block if at all possible
- 20-40 mg Precedex prior to emergence

- NOT an endorsement of this regimen
- Merely for discussion
- What pathway points do these medications hit?

Your cases, experiences and recipes...!



OPIOID ALTERNATIVES

CERTA Analgesia Concept | Opioid Reduction Strategy

Dr Sergey Motov (USA)
Dr David Lipsky (UK)
@Doc_Cracie | @PainFreeED
www.propofology.com

Pain Syndrome	Inpatient (in the ED) Parenteral Opioid Alternatives	Outpatient (at discharge) Oral Opioid Alternatives
Abdominal Pain (non-traumatic)	1. IV Ketorolac 10-15 mg or IV Diclofenac 75 mg IV or IV Metamizole 1g (as a single agent OR in combination with number 2,3,4) 2. IV Acetaminophen (Paracetamol) 1g over 15 min* 3. IV Lidocaine -1.5 mg/kg of 2% Lidocaine (preservative free) over 10-15min (more cuts needed for patients with cardiac disease) 4. IV Ketamine-0.3 mg/kg over 10 min, + IV drip at 0.15 mg/kg /hr	PO Ibuprofen 400 mg q8h x 3-5 days or PO Acetaminophen (Paracetamol) 1g q6h x 3-5 days OR a combination of two
Abdominal Pain (traumatic)	1. IV Acetaminophen(Paracetamol) 1g over 15 min* 2. IV Ketamine-0.3 mg/kg over 10 min + IV drip at 0.15 mg/kg /hr	PO Ibuprofen 400 mg q8h x 3 -5 days or PO Acetaminophen (Paracetamol) 1g q6h x 3-5 days OR a combination of two
Back Pain (non-radicular)	1. IV Ketorolac-10-15 mg or Ibuprofen 400 mg PO or IV Diclofenac 75 mg IV or IV Metamizole 1g (a single agent OR in combination with number 2,3,4) 2. Trigger point injection 10 ml 0.5% Bupivicaine or 2ll ml of 1% Lidocaine to site of maximal pain 3. IV Acetaminophen (Paracetamol) 1g over 15 min* 4. IV Lidocaine -1.5 mg/kg of 2% Lidocaine (preservative free) over 10-15 min 5. IV Ketamine-0.3 mg/kg over 10 min, + IV drip at 0.15 mg/kg /hr	PO Ibuprofen 400-800 mg q8h PO Acetaminophen (Paracetamol) 1g q6h PO Methocarbamol 500 mg-1500 mg q8h PO Diazepam-5 mg q8h Topical Diclofenac Gel 3% q8h Physical Therapy Acupuncture
Burns	1. IV Ketamine-0.3 mg/kg over 10 min, + IV drip at 0.15 mg/kg /hr 2. IV Lidocaine 2% 1.5 mg/kg (preservative free) over 10-15 min, + continuous infusion at 1.5-2.5 mg/kg /hr 3. IV Dexmedetomidine 0.2-0.7 mcg/kg/hr drip OR 4. IV Clonidine-0.3-2 mcg/kg/hr drip	Lidocaine 5% cream PO Ibuprofen 400 mg q8h x 3 -5 PO Acetaminophen (Paracetamol) 1g q6h

Gratitude is the memory of the heart...

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Questions...