# AROC 2018

## Saturday, April 28


# Alternatives to Opioids

Otto Sabando, DO, FACOEP, FACEP

# Alternatives to Opioids in Medicine

Otto F Sabando, DO FACOEP FACEP FFSMB
Medical Director
Clinical Assistant Professor
St. Joseph's University Hospital, Paterson, NJ

NJ Board Medical Examiners
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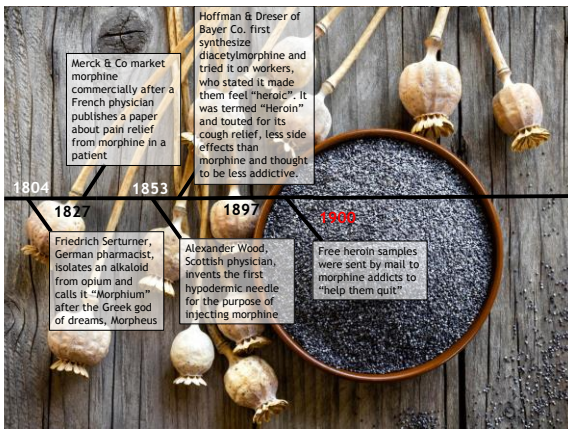
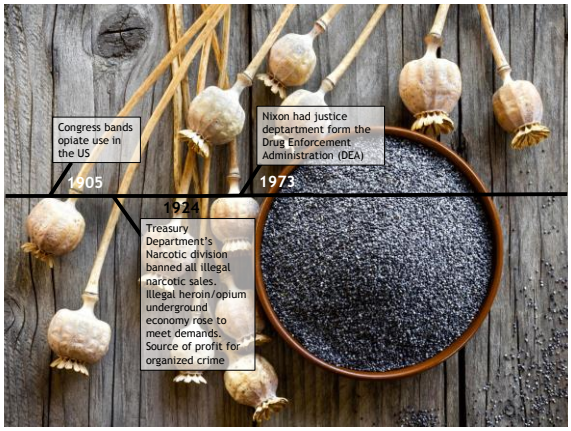
St. Joseph's Regional Medical Center
Paterson, NJ

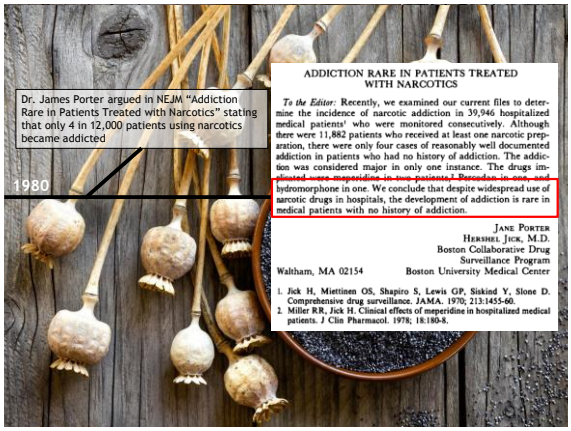

## Objectives

- Discuss our current opioid epidemic
- Learn about alternatives through cases



# Alternatives to Opioids




## Numbers…

1.9 million

dependent on opioid pain relievers

75%

heroin users reported that their first opioid was a prescription drug

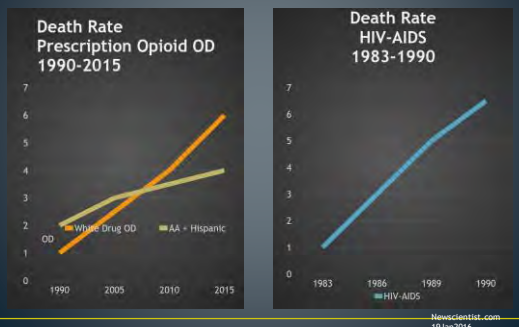
51

people die per day from prescription opioid OD

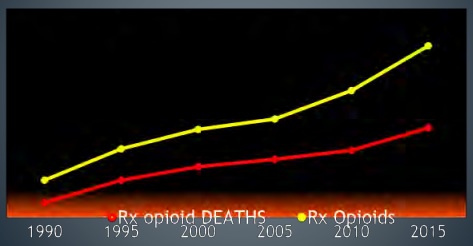
18,893

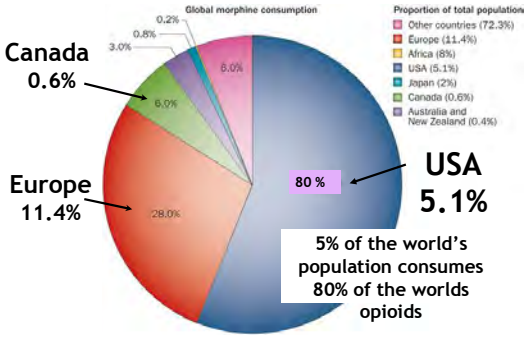
deaths per year

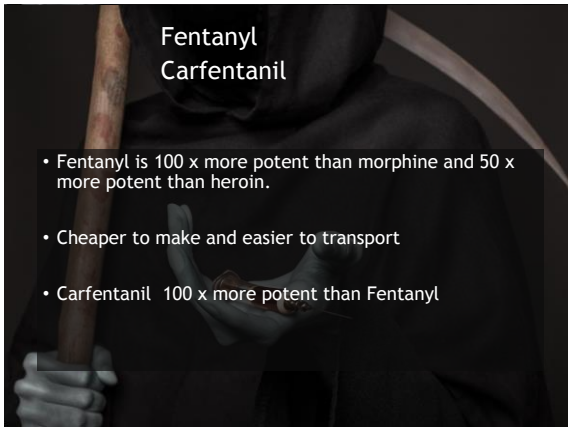
"Opioid overdose deaths in the US resemble a new infectious disease"




## Opioid Prescribing Habits vs. Prescription Opioid OD Deaths





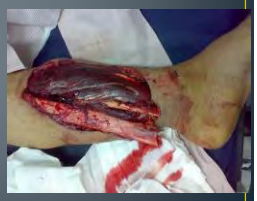

## What can we do in the Out-patient setting?

- **Keep opiate-naïve patients naïve**, prevent introducing opioid medications especially for chronic pain conditions.
- Use alternative therapies to patients who are already opioid tolerant who present to the ED in acute pain
- Educate our patients on managing their expectations of pain and the dangers of addiction

## Opioids are necessary……

……but they are not the solution for all pain

- **THINK** before you prescribe
- **USE** alternatives whenever possible
- **CARE** about the patient



## ALTO℠

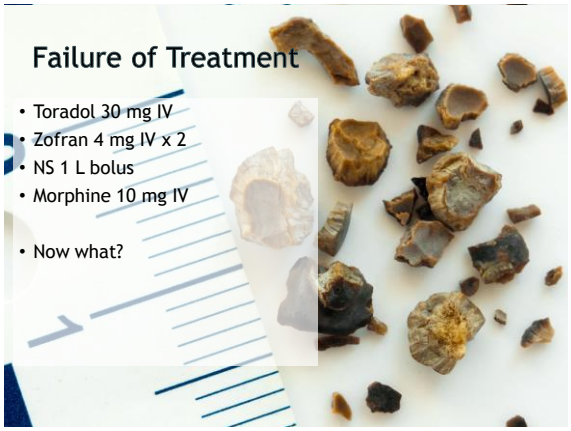
Alternatives to Opioids

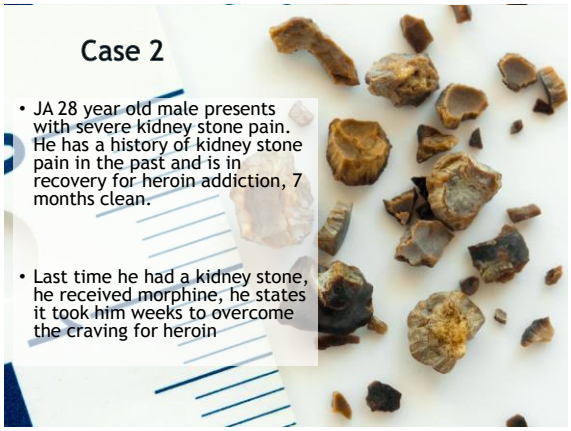
- Renal Colic
- Musculoskeletal Pain
- Lumbar Radiculopathy
- Migraine Headache
- Extremity Fracture/Dislocation

## Case 1

- MM is a 57 year old female who presents to the ED with severe flank pain and vomiting. History of kidney stones in the past.
  - PMHx: none, PSHx: none, NKDA, No med prior to arrival
- Toradol 30 mg IV
- 1 L NS
- Zofran 4 mg IV


Case 1, continued
• MM reports minimal pain relief and is still in distress. Next line therapy?
• Morphine?
• Patient received morphine 5 mg IV.
• VERY minimal pain relief
• She receives another morphine 5 mg IV + Zofran
• Pain is unchanged and she is vomiting


Failure of Treatment
• Toradol 30 mg IV
• Zofran 4 mg IV x 2
• NS 1 L bolus
• Morphine 10 mg IV
• Now what?


Case 2
• JA 28 year old male presents with severe kidney stone pain. He has a history of kidney stone pain in the past and is in recovery for heroin addiction, 7 months clean.
• Last time he had a kidney stone, he received morphine, he states it took him weeks to overcome the craving for heroin

## Alternatives?

- Is there evidence to support the use of alternatives for renal colic?

## Intravenous Lidocaine

- Intractable oncological pain
  - Improved pain with fewer side effects, compared to opiates alone
  - Little to no toxicity
  - Improved quality of life
- Post-operative pain relief, meta-analysis
  - Reduced pain at rest, with movement, and with cough
  - No statistical difference in adverse events

Ferrini 2004
Vigneault 2011

## Lidocaine for Post- Op Pain
### Cochrane Review

- Immediately reduced pain lasting up to 24 hours
- Less opiates
- Decreased LOS
- Quicker bowel function return
- Less nausea
- No difference in rate of death, arrhythmia, toxicity, or other heart disorder
- ***Low to moderate evidence that intravenous lidocaine has an impact on pain scores compared to placebo***
- ***More studies need to be done***

Kranke 2015

## Mechanism of action

- Inhibits afferent sensory conduction
  - Analgesia
- Paralyzes the ureter
  - Quicker stone passage?

## Intravenous Lidocaine

- Cardiac Monitor
- 1.5 mg/kg (200 mg/100 mL NS) over 10 minutes on a pump
  - MAX 200 mg

## Take Home Point #1

- Intravenous lidocaine is a safe and effective analgesic for renal colic.

## Case 3

- 57 M presents with 2 days of acute low back pain after moving a sofa. Has tried ibuprofen once per day without much relief.
  - PMHx- high cholesterol
  - NKDA
  - What's the best treatment for him?


## NSAIDs and Tylenol

- NSAIDs work better with Tylenol
  - Tylenol 1000 mg
- Analgesic ceiling
  - ~400 mg/dose or ~1200 mg/day

Friedman 2015
Derry 2013
McQuay 2007
Seymour 1996

## Topicals

- Lidoderm patches
- Diclofenac gel improves pain associated with OA of the knee and musculoskeletal injuries
  - NNT 1.8

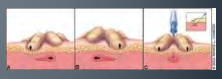


Galer 2004
Wadsworth 2016
Baraf 2011
Barthel 2010
Cochrane 2015

## Trigger Point Injections


Area of spasm that reproduces pain, typically from an injury or pain >24 hours old. Usually in the back

- 0.5% marcaine without epi- 1-2 mL
  +/- steroids
- 25 gauge needle
- Alcohol swab
- Band-aid
- Consent
  Infection, bleeding



Contraindications: cellulitis over area, anticoagulation, allergy to local anesthetic

## Trigger Point Injection Technique

- https://www.youtube.com/watch?v=M6A8a_7Uv10
- (end at min 3:30)

## Take Home Point # 2

- Most acute low back pain does not require opioids
- NSAIDs + Tylenol + Topicals
  - Muscle relaxant may be necessary

## Case 4

- 57 M with chronic pain due to lumbar radiculopathy presents with an acute flare. He takes MS Contin 100 mg PO BID and oxycodone 30 prn.
- No focal neuro deficits but in severe distress.
- Management?

## Your Brain on Opioids

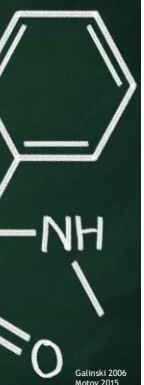
- The neurochemistry of the brain changes when exposed to chronic opioids
- More opioids does not equal better relief
- Allodynia
- Hyperalgesia
- Chronic Pain

## Opioid Tolerant Patients

- NSAID + Tylenol
- Gabapentin 300 mg
- Valium or Flexeril
- Ketamine infusion + drip

## Ketamine

$C_{13}H_{16}ClNO$




- Antagonizes NMDA receptor
  - Sole agent for analgesia
- Sub-dissociative dosing
  - 0.3 mg/kg infusion
  - 0.1 mg/kg/hour drip
- Opioid sparing effect
- No vital sign changes, no additional monitoring

Galinski 2006
Motov 2015
Miller 2015

## Ketamine

- Mild transient dysphoria
- "Prepare the patient"
- Emergence, rare if at all
  - Benzos
- Once patient is better, stop drip and discharge

## Ketamine

- Intranasal
  - Safe in children
  - 0.5 mg/kg MAX 50 mg/dose
    - MAX volume 1 mL/nare
  - No change in vital signs
  - Significant reduction in pain score
  - Easy to administer
  - Can re-dose
  - Works within 15 minutes

Andalfatto 2013
Yeaman 2013
Yeaman 2014
Shrestha 2016

## Take Home Message #3

- Ketamine can be used in conjunction with opioids or as a sole agent for analgesia in the emergency department for acute and chronic pain.
- Intranasal administration is effective and easy.

## Case 5
(last case)

- 23 M comes to ED for gluteal abscess. The patient is in the urgent care/fast track section. The abscess is LARGE. He has had them before and is pleading with you to “put me to sleep”!
- What can be done to adequately treat the patient’s pain in a fast track setting?

## Nitrous Oxide

## Nitrous Oxide

- Tasteless colorless gas administered in combination with oxygen via mask or nasal hood
  - Maximum concentration 70% $N_2O$
- Absorbed via pulmonary vasculature and does not combine with hemoglobin or other body tissues
- Rapid onset and elimination
  - <60 seconds

Becker 2008

## Benefits of Nitrous Oxide

- Analgesic and anxiolytic agent
  - Use along with local anesthetic or other pain medications
  - Releases enkephalins, effects reversed with naloxone
- Only monitoring is pulse oximetry
- No NPO requirements, patient can drive after administration, no IV line needed

Babl 2015
Zhang 1999
Becker 2008
Champman 1979

## Nitrous Oxide Evidence

- It indicated for any and every painful condition
- All ages

- Laceration
- Lumbar puncture
- Peripheral and central venous access
- I&D
- FB removal
- Burn/Wound Care
- Fecal Disimpaction

Herres 2015 Ducasse 2013
Klomp 2012 Aboumarzouk 201
Furuya 2009 Atassi 205

## The Downside to Nitrous Oxide

- Abuse potential
- Mobile unit
- Patient should be awake enough to hold mask
- Patients may feel claustrophobic when using the face mask

## Contraindications

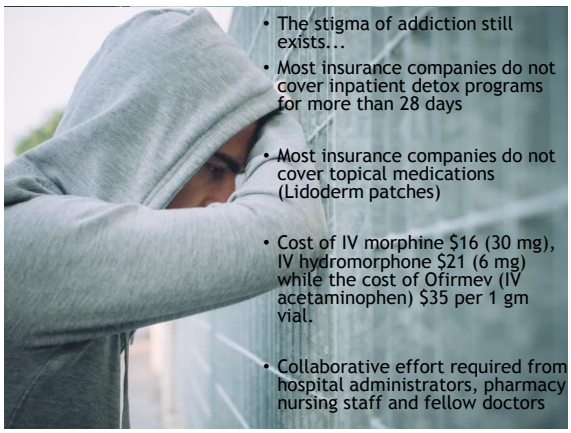
- COPD or severe active asthma
- Vitamin B12 deficiency
- Otitis Media, Sinusitis
- Bowel Obstruction
- Altered level of consciousness
  - Psychiatric disease, EtOH, Head Injury
- 1st and 2nd trimester pregnancy

## Take Home Point #4

- Nitrous Oxide is a fast acting easily administered analgesic, ideal for the management of acute pain

## Summary

- Renal colic → **IV LIDOCAINE**
- Low Back Pain → **Tylenol, NSAIDs, topicals and Trigger Point Injection**
- Opiate Tolerance → **KETAMINE**
- Procedures → **NITROUS**



- The stigma of addiction still exists...
- Most insurance companies do not cover inpatient detox programs for more than 28 days
- Most insurance companies do not cover topical medications (Lidoderm patches)
- Cost of IV morphine $16 (30 mg), IV hydromorphone $21 (6 mg) while the cost of Ofirmev (IV acetaminophen) $35 per 1 gm vial.
- Collaborative effort required from hospital administrators, pharmacy nursing staff and fellow doctors

## Keep opioid exposure to a minimum

- The use of alternatives for pain management decreases unnecessary exposure of potential harmful medications to our patients.
- Opioids are important but should not be reflexively prescribed

## Summary

- Promote prescribing alternatives whenever possible
- Prevention is KEY!
- Support patients who suffer from the disease of addiction
- Educate our patients on the potential dangers of medications prescribed

## Thank you!