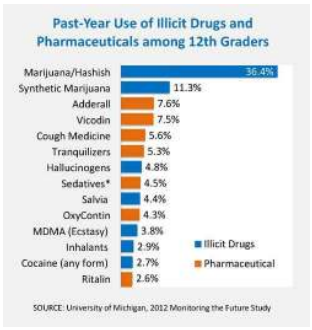
Breaking Bad: Opioids and Illicit Medications and Operative Risk

Jesse Aron, MD

1

The War on Drugs



2

And now there's Fentanyl too!

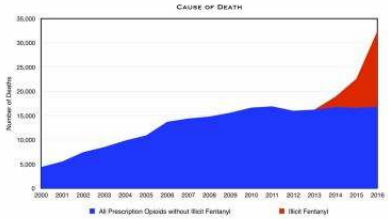


Figure 5. Opioid Overdose Deaths 2000-2016, with and without Illicit Fentanyl

3

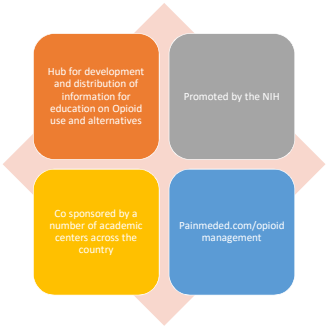
The Opioid Crisis and the Surgical Specialties

- Health and Human Services 5 point plan

1. Access to prevention, treatment and recovery services through grants to Medicaid programs
2. Improved Data
3. Improved pain management – prescription control, alternatives, regional blocks and reimbursement
4. Overdose and reversal agents
5. Improved Research on pain control, addiction centers

4

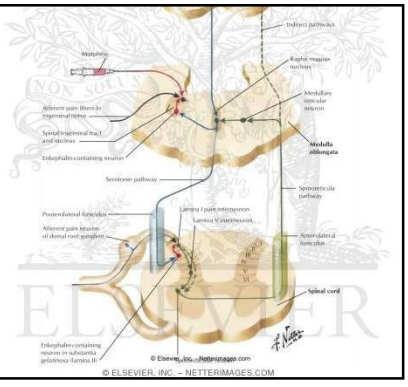
Centers of Excellence in Pain Education



5

Why do we have a crisis?

- Opioids have been a part of pain control for centuries!
- Does one intraoperative narcotic dose predispose you to dependency?
- Why don't we just abolish narcotic prescriptions altogether?



6

Who is to blame?

- Big Pharma?
- Physicians?
- Insurance companies?
- Ourselves? Are we becoming more prone to all kinds of addictions? Cell phones, video games, TV, Food/soft drinks

7

What is Addiction?

- Chronic disease of reward, motivation and memory
- Biological, psychological, social and spiritual
- Characterized by the following:

1.Inability to abstain from use
2.Loss of control of use of the substance
3.Compulsion and craving for the substance
4.Persistent use of the substance despite possible harmful consequences
5. Cycles of relapse and remission

8

How to Evaluate a patient who may have addiction issues

Evaluation of Patient for OUD CAGE-AID (Adapted to Include Drugs): 1. In the last three months, have you felt you should cut down or stop drinking or using drugs?

2. In the last three months, has anyone annoyed you or gotten on your nerves by telling you to cut down or stop drinking or using drugs?

3. In the last three months, have you felt guilty or bad about how much you drink or use drugs?

4. In the last three months, have you been waking up wanting to have an alcoholic drink or use drugs

9

Identifying At Risk Patients

- Screening – Self report Questionnaires
- Assess risk of abuse with chronic opioid therapy
- Urine Drug Screening
- Check the state Prescription Drug Monitoring Program

10

Role of Peri-Operative Pain Management

More than 80% of surgical patients experience postoperative pain, and 86% of these patients rated the pain as moderate, severe or extreme

Untreated pain risks persistent post-operative pain

•Supported by both retrospective recall bias and prospective studies

Patients who attribute pain to trauma or surgery experience more emotional distress and higher pain than those whose pain was not associated with acute event

11

Reducing Long Term Use

- Use of opioid for acute pain associated with long term use
- Higher initial exposure (dose, duration/ days supplied) also associated with long-term use
- Not all acute pain requires treatment with opioids!

12

Does a Good Nerve Block redue the risk of chronic opioid Use?

- Unfortunately, 2 recent database reviews suggests that use of regional anesthetic techniques for TKA and Shoulder Arthroplasty is not associated with lower risk of chronic post-surgical opioid use

Lack of Association Between the Use of Nerve Blockade and the Risk of Persistent Opioid Use Among Patients Undergoing Shoulder Arthroplasty: Evidence From the Marketscan Database. Anesth Analg. 2017 Sep;125(3):1014-1020. Mueller KG1, Memtsoudis SG, Mariano ER, Baker LC, Mackey S, Sun EC.

Lack of Association Between the Use of Nerve Blockade and the Risk of Postoperative Chronic Opioid Use Among Patients Undergoing Total Knee Arthroplasty: Evidence From the Marketscan Database.Anesth Analg. 2017; 125(3):999-1007 (ISSN: 1526-7598)Sun EC; Bateman BT; Memtsoudis SG; Neuman MD; Mariano ER; Baker LC

13

Management of the Opioid Dependent Patient in the Peri-operative setting

No evidence that exposure to opioids for acute pain control increase relapse risk for chronic use

Evidence suggests that not using an opioid in the acute setting may trigger hyperalgesia and promote relapse

Still recommended to use alternative with opioids

- NSAIDS/COX-2 Inhibitors
- Acetaminophen
- NMDA antagonists
- Alpha 2 agonists
- Anti-convulsants

14

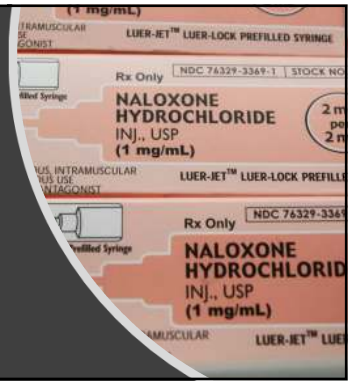
Street Fentanyl and Anesthesia

- Obviously the narcotized patient is an issue
- As is the drug seeking patient
- How about the patient who recently over dosed?

15

Naloxone efficacy

- Direct antagonist to narcotic at Mu receptors
- Works immediately when pushed for over dose
- Can cause nausea vomiting, delirium, hypertensive crisis, acute pulmonary hypertension
- Metabolized in 60 to 90 minutes – pt can become obtunded again so must be monitored afterwards for relapse



16

Which Drugs carry the greatest risk with elective outpatient procedures?

All of them and none of them, why?

Metabolism of drug(s), dependence on drug(s), chronic effect of drug(s) and end organ damage

Example: Which patient is higher risk: 40 pack year cigarette smoker who just put out a Marlboro in the parking lot or a first time Cocaine user from three nights ago?

17

Specific drugs

- Cocaine
- Methamphetamines
- Cannabis
- Ectasy
- Banned weight loss medications
- Banned steroids

18



Cocaine: Acute and chronic use

19

Cocaine

- Inhibition of norepinephrine, dopamine and serotonin transporter mechanism leading to increase in plasma levels of neurotransmitters
- Increase in BP, HR, body temperature during first 30- to 90 minutes
- Coronary vasospasm – myocardial infarction
- Cocaine half life is 30 -90 minutes
- Ingested Cocaine rapidly hydrolyzed by plasma and liver esterases to ecgonine methyl ester (EME) and benzoylecgonine
- Metabolites do not possess any cocaine like properties, but can be detected in serum or urine for up to 10 days

20

Anesthesia with acute ingestion

- Concern for increased norepinephrine release with sympathetic discharge

1. Painful stimulus ie: laryngoscopy
2. Surgical pain
3. Injection of local with epi
4. Other medications: Sumatriptan derivatives, ephedrine

- Cardiac arrhythmias, myocardial ischemia, hypertensive crisis, cerebral ischemia

21

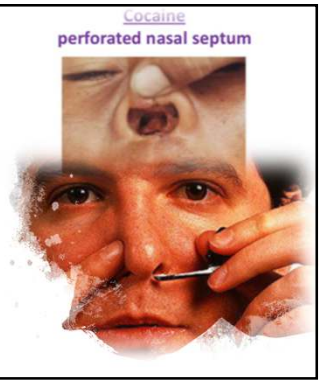
Is it safe if taken in 24 hrs

- Metabolised in 90 minutes so delay for that time?
- Should you use local without
- Can you guarantee a pain free procedure or anesthetic?
- "Is it pure? "

22

Cocaine nose

- Chronic use leads to vasoconstriction and break down of the nasal septum
- Contraindication to nasal intubation!



23

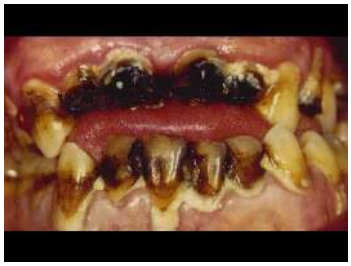
Methamphetamines

- Crystal meth, Adderall, Dexadrine, speed, Crank, Ice
- Dopamine agonist creates pronounced euphoria and alertness
- High potential for addiction
- Effects: tachycardia, hypertension, hyperthermia, vasoconstriction,
- Hypertensive crisis, Myocardial ischemia, cerebral ischemia,

24

Long term Side Effects of Methamphetamines

- Parkinson's Disease
- Highly addictive and difficult withdrawal
- "Meth Mouth" - secondary to poor hygiene and bruxism



25

Metabolism

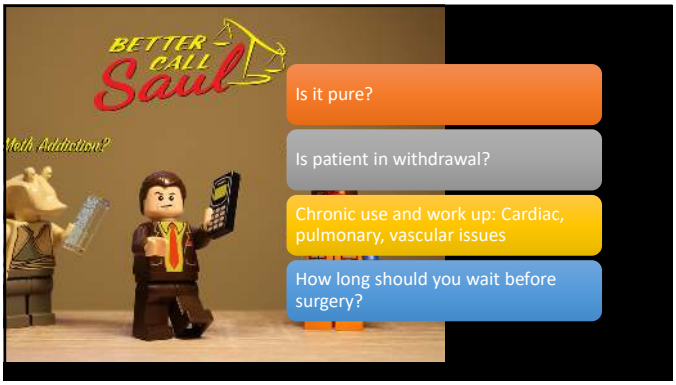
- "High" lasts 2 to 24 hours
- Half life of 9 to 24 hours metabolized in the urine as amphetamine
- Blood serum levels up to 96 hours
- Detectable in hair follicles for up to 90 days
- Injected>smoked>ingested

26

Affects on Anesthesia

- Acute toxicity – Sympathetic response like Cocaine
- Sensitivity to Ephedrine and Epinephrine
- Desensitized to General Anesthesia
- Poor dentition
- Poor vasculature

27



- Is it pure?
- Is patient in withdrawal?
- Chronic use and work up: Cardiac, pulmonary, vascular issues
- How long should you wait before surgery?

28

Weight Loss medications – banned/non-perscribed

- "FenPhen" - Fenfluramine Phentermine removed from market in 1996 after multiple deaths 1/20,000
- Can still be bought illegally online
- Qsymia – on market today much lower dose however should be stopped at least one week prior to surgery to diminish risk of hypertensive crisis
- Issue is not severe hypertension but severe hypotension from depleted cathecholamines

29

Lorcaserin (Belviq)

- Serotonin 2C receptor agonist activates appetitie control center in hypothalamus
- Removed from market in 2012 because of hallucinations and dependence issues
- Now approved by FDA for BMI>30 or 27 with diabetes
- Interaction with other serotonin agonists like Sumatriptan and Tramadol

30

Contrave – Buproprion/Naltrexone

- Bupropion is a reuptake inhibitor and releasing agent of norepinephrine and a nicotinic acetylcholine receptor antagonist, and it activates proopiomelanocortin (POMC) neurons in the hypothalamus which give an effect downstream, resulting in loss of appetite and increased energy output. The POMC is regulated by endogenous opioids via opioid-mediated negative feedback.
- Naltrexone by contrast is a pure opioid antagonist, therefore further augmenting bupropion's activation of the POMC
- an effect on the reward pathway that results in reduced food craving

31

Side Effects/Drug Interactions

- Hypertension, tachycardia
- Buproprion can be synergistic with other antidepressants and Mao Inhibitors
- Naltrexone will inhibit the effect of narcotics!

32

Cannabis

- Major component is THC which creates the "high" sensation
- CBD is all the rage! Is there any risk?
- Can be smoked or ingested, is there a difference?

33

THC - tetrahydrocannabinol

- Found in the dried leaves of the Cannabis plant
- Acts as a partial agonist at the cannabinoid receptor
- Onset of effects is minutes when smoked/vaped, @ 60 minutes when ingested
- Effects last 2 to 6 hrs
- Detected in urine up to 45 days after depending on amount/frequency used

34

THC effects

- "Stoned" or "high"
- Increased appetite
- Short term memory loss
- Eye inflammation
- Acute psychosis/anxiety
- Long term cognitive effects

35

CBD- Cannabidiol

- No psychoactive acitivity
- Shown to decrease incidence of seizures in 2 rare forms of Epilepsy to date: Lennox-Gestault Disease and Dravet Syndrome
- Can be ingested, aerosolized or placed on skin as an ointment
- No large studies show any efficacy in treating any other maladies to date
- Potential interference with blood thinners leading to increased bleeding time
- Can be used day within 24 hours of surgery

36

Smoking Marijuana

Effects of Marijuana Smoking on Pulmonary Function and Respiratory Complications: A Systematic Review

Arch Intern Med. 2007 Feb 12; 167(3): 221–228.

Jeanette M. Tetrault, MD, Kristina Crothers, MD, Brent A. Moore, PhD, Reena Mehra, MD, MS, John Concato, MD, MS, MPH, and David A. Fiellin, MD

"Marijuana and tobacco smoke share many of the same compounds. Tobacco smoking is associated with numerous adverse pulmonary clinical outcomes, affecting both pulmonary function and respiratory complications. Some of the known tobacco smoking–related adverse effects include cough, chronic bronchitis, impairment of gas exchange, and airway obstruction that leads to chronic obstructive pulmonary disease. The adverse impact of marijuana smoking on pulmonary function and respiratory complications has not been systematically assessed. The purpose of the current review is to determine the association between short-term marijuana smoking and airway response and the association between long-term marijuana smoking and pulmonary function or respiratory complications."

37

"I just got high in the parking lot before my procedure!"

1. Is it pure? Fentanyl laced Marijuana
2. Why? I mean come on, really?!
3. American Society of Anesthesia believes that a patient who appears intoxicated as being unable to use proper judgement to make medical decisions - See #2

38

Ectasy

- 3,4-Methylenedioxymethamphetamine (MDMA)
- "E" "X" "Moly" "Bath salts"
- Oral, sublingual or snorted variations
- Euphoria, sense of increased energy
- Effect begins in 30 to 45 minutes and lasts 3 to 6 hours
- Acts at Dopamine, Serotonin and Norephenephrine receptors
- Side Effects: Hypertension, Insomnia, tachycardia, Sweating, dehydration, hypotension from cathecholamine depletion, somulence
- Found in urine up to 72 hrs after use

39

Issues with Anesthesia

- Delayed severe rhabdomyolysis after taking 'ecstasy'. Postgraduate Medical Journal 1995; 71: 186–8. Lehmann ED, Thom CH, Croft DN.
- Lactic Acidosis from dehydration with Propofol and Dexamethasone = Propofol Infusion Syndrome
- Electrolyte disturbances and arrythmias
- Trismus

40

"I was at a Rave last night and dropped some E"

- Was it pure?
- Were you outside? Did you drink any water or Gatorade?
- Did you get any sleep?
- What were you thinking? I mean come on really?!

41

Anabolic Steroids

- Decreased use amongst High Performance Atheletes dur to tesing but continued use by amateurs
- Main steroid abused is testosterone in the form of pills, creams or transdermal patch
- Other supplements include diuretics, thyroxine and amphetamines
- Main side effects include increased libido, decreased testiclular volume, acne and mood changes
- Hypertension, left ventricular hypertrophy and CHF
- Vascular thrombosis

42

Anesthesia Issues

- Electrolyte disturbances
- Muscle fasciculations with succinylcholine leading to hyperkalemia
- Violent emergence from anesthesia
- Difficult airway
- Lactic acidosis/dehydration

43

In Conclusion

- You can trust a drug user to be honest but you can't trust a drug to be honest
- Most drugs are metabolized after 24 hours so it cant hurt to wait…..
- Unless you are prepared to deal with :

1. blood pressure and heart rate instability
2. hyperthermia/hypothermia
3. uncooperative patients

44