"The Addicted or Opioid Dependent Patient Having Surgery"

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Objective

◆ List five key principles for the optimal pain management of the addicted or opioid tolerant patient.

You know what?...some things ARE predictable!
19 y.o. Jason Surks dies of drug overdose – oxycontin and xanax were purchased over the Internet (2004)

- Prescription medicine now ranks second, behind marijuana, among drugs most abused by adults and young people (White House Office of National Drug Control Policy, 2004)
- In 2006, 96% of unintentional poisoning deaths were caused by drugs, with opioids being the most common (CDC, 2009)
- In 2004, twenty states had prescription monitoring systems in place; currently 40 states have prescription monitoring systems in place

DAWN (2009)

- ED visits for the non-medical use of opioids increased 111% from 2004 to 2008
- Highest numbers related to oxycodone, hydrocodone, and methadone
- ED visits for the non-medical use of benzodiazepines increased 86% from 2004 to 2008

As of 2006, in Ohio, unintentional drug overdoses surpassed vehicular accidents as the leading cause of accidental death with opioid overdoses involved in 79% of drug poisonings (ODH, 2009). Nationally, accidental overdoses were 2nd (CDC, 2006)
2009 National Youth Risk Behavior Survey (CDC, 2010)

- 1 in 5 high school students in the U.S. have taken a prescription drug without a prescription
- There has been at least a 10-fold increase in the medical use of opioid painkillers during the last 15 years
- Abuse of ETOH, steroids, marijuana, cocaine, and methamphetamines has shown a DECREASE in high school students from 1999-2009

Unintentional Drug Poisoning in U.S. (CDC, 2009)

[Graph showing increase in unintentional drug poisoning]

Fatal Drugs

- Among deaths attributed to drugs, the most common drug categories are cocaine, heroin, and a "type of prescription drug called opioid painkillers"
- In 2006, the number of deaths involving opioid analgesics was 1.63 times the number involving cocaine and 5.88 times the number involving heroin (CDC)
“Male rates have doubled since 1999 and female rates have tripled since 1999” (CDC, 2010).
On April 2, 2010, by Executive Order, the Governor of Ohio, established a taskforce called the "Ohio Prescription Drug Abuse Taskforce" commissioned with reducing deaths from drug overdoses in Ohio.

*Most common heroin is black tar heroin from Mexico.
“9 out of 10 primary care physicians fail to diagnose addiction in patients who display typical symptoms of the problem” (CASA, 2003).

“Middle class young people are turning to heroin after they become dependent on Oxycontin or other prescription medications but can no longer get a prescription for the pain reliever” (Siegel, 2003)

**Quantity and Frequency of Alcohol Use**

- 20% of all patients admitted to hospital abuse alcohol (Sander et al, 2005)
- Leading drug of abuse in elderly- increased risk for postoperative cognitive impairment (Hudetz et al, 2007)

**ALCOHOLISM**

Chronic alcoholism increases infection risk postoperatively due to T-helper cell ratio of T1 to T2 being depressed; and/or increased interleukin 10 (Lau et al, 2009; Gacoucin et al, 2008; Sander et al, 2005; Spies et al, 2004).

- Some evidence that propofol is preferred over isoflurane intraoperatively to reduce infection risk; increased interleukin-6 to IL-10 ratio (VonDossow et al, 2007)
Alcoholism

- Study compared Anesthesiologist interview to Alcohol Use Disorder Identification Test (AUDIT) and found 6.9% (n=1556) were identified by Anesthesiologist as compared to 18.1% on AUDIT (Kip et al., 2008).
- If suspect need to use CIWA post-op, check albumin level.

Chronic Pain - The Balancing Act

Incidence (National Center for Health Statistics, 2006)
- More than one-quarter of Americans (26%) age 20 years and over - or an estimated 76.5 million Americans - report that they have had a problem with pain of any sort that persisted for more than 24 hours in duration. [NOTE: this number does not account for acute pain].
- Adults age 45-64 years were the most likely to report pain lasting more than 24 hours (30%). Twenty-five percent (25%) of young adults age 20-44 reported pain, and adults age 65 and over were the least likely to report pain (21%).
- More women (27.1%) than men (24.4%) reported that they were in pain.
- Non-Hispanic white adults reported pain more often than adults of other races and ethnicities (27.8% vs. 22.1% Black only or 15.3% Mexican).
Definitions  American Pain Society, American Academy of Pain Medicine, & American Society of Addiction Medicine (2001)

- **Dependence** "A state of adaptation that is manifested by a drug class specific withdrawal syndrome that can be produced by abrupt cessation, rapid dose reduction, decreasing blood level of the drug, and/or administration of an antagonist."
- **Tolerance** is a state of adaptation in which exposure to a drug induces changes that result in a diminution of one or more of the drug’s effects over time
- **Addiction** is defined as “…a primary chronic, neurobiologic disease, with genetic, psychosocial, and environmental factors influencing its development and manifestations. It is characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving”.
- **Pseudoaddiction** is “confusing behaviors that resemble addiction because a pain problem has been misdiagnosed, undertreated, or improperly treated. Behaviors intensify as pain worsens.”

High Risk Groups - Addiction

- Psychologically impaired
  - schizophrenics, antisocial personalities, anxiety disorders, obsessive compulsive disorders, bipolars, depressive disorders (Reiger, D. et al., 1990)
- Addictive personalities
- Elderly- alcoholism
- Familial tendencies
- Overwhelming stress with poor coping ability
**ARE THERE OBVIOUS SIGNS??**

†Injecting oral or topical formulations
†Alleging loss or theft of opiate prescriptions
†Using alias or false diagnosis to procure opiates
†Failing to undergo recommended diagnostic tests
†Producing positive urine toxicology (non-prescribed substances)

**Addictive Behaviors (Newsham, 2000)**

†Selling prescription drugs
†Prescription forgery
†Stealing or obtaining drugs from others
†Concurrent abuse of other drugs or alcohol
†Repeated ER visits without informing prescriber
†Deterioration in function (work, family, socially)
†Repeated drug escalation or noncompliance despite warnings from prescriber.

**Differentiating True Addiction from Pseudoaddiction (Portenoy, 1994)**
Pseudoaddictive Behaviors

- Similar to addictive behaviors
- Resolve when:
- Pain management regimen eliminates or reduces pain significantly
  
  OR
- When patient’s pain report is perceived by the patient as believed!

Pseudoaddiction - Less suggestive of addiction (Portenoy, 2008)

- Aggressive complaining about needing more drugs
- Drug hoarding if symptoms improve
- Requesting specific drugs
- Openly acquiring similar drugs from other medical sources
- Occasional dose escalation
- Resistance to change in therapy with adverse effects
- Intense expressions of anxiety about recurrent symptoms
- Unapproved use of drug to treat other symptom

Assessment of Drug and Alcohol Use

- Assess functionality of patient
- How much do you use? (Suggest excessive numbers)*
- Where do you get the drugs?
  - Friends, family, street, prescription
- Drug misuse of route
  - Injecting, snorting, heating, transmucosal

*83% of drug-abusing patients in treatment, use two or more substances (Hall & Henry, 2007)
**Signs of Opioid Withdraw**

*Heroin withdraw within 12 hours, methadone withdraw up to 30 hours later*

- Early symptoms of withdrawal include:
  - Agitation
  - Anxiety
  - Muscle aches
  - Increased tearing
  - Insomnia
  - Runny nose
  - Sweating
  - Vomiting
- Late symptoms of withdrawal include (flu-like):
  - Abdominal cramping
  - Diarrhea
  - Dilated pupils
  - Goose bumps
  - Nausea
  - Vomiting
  - Elevated heart rate and blood pressure

**Signs of Benzodiazepine Withdraw (partial list)**

- Anxiety
- Panic attacks or terror
- Depression
- Weight loss
- Agitation/restlessness
- Dilated pupils
- Muscle spasms/cramps
- Blurred vision
- Dizziness
- Dry Mouth
- Aches and pains
- Hearing impairment
- Taste and smell disturbances
- Chest pain
- Stiffness
- Seizures if withdrawn too quickly

**Opioid Abusers Having Spinal Block**

- Intrathecal 5% Lidocaine found to have less duration of anesthesia for elective lower abdominal surgery in abusers (n=100) (Vosoughian, Dabbagh, Rajaei & Maftuh, 2007) in Anesthesia & Analgesia
  - 60+/-7 min Abusers
  - 83+/-10 min Non Abusers
- Same findings with lower extremity orthopaedic surgeries & bupivacaine (n=100) (Dabbagh et.al, 2007)
  - 86.6+/-15.7 min Abusers
  - 162+/-22.1 min Non Abusers
**Cocaine**

- If positive, recommended to wait 8 hours from last use to provide anesthesia (Granite et al., 2007) – new case reports published of doing sooner if positive urine toxicology since drug may be inactive
- New study (n=3477), no difference in outcomes including mortality, LOS, cardiac, infectious, and/or neurological complications with +urine, when surgery first day after admission (Ryb & Cooper, 2008)
- Use of oxygen, diazepam (decrease nervous system activity), nitrates (relieve coronary artery spasm), nitrous oxide, opioids & regional anesthesia recommended; caution with inhalation therapy due to myocardial depressant effects (Hall & Henry, 2007; Skerman, 2005)

**Anabolic Steroid Abuse**

- Findings in two studies:
  - Cardiomyopathy, atherosclerosis, hypercoagulopathy, hepatic dysfunction, psych and behavioral disturbances (Kam & Yarrow, 2005)
  - 41 y.o. cardiac arrest secondary to LV hypertrophy, decreased EF, monomorphic VT during anesthetic induction for elective orthopaedic surgery (Angelilli et al., 2005)

**Surgical Problems related to Parenteral Drug Use** (Hall & Henry, 2007)

- Venous access (thromosed veins)
- Arterial damage if deep venous access
- DVT – lying in one position, poor med compliance, groin injections
- Abscess/gangrene – IM injections
- Compartment syndrome, neuropraxia
- Blood-borne infections
Pre-Emptive Treatment/Blocks with Chronic Opioid Use (Brill et al., 2006)

- Medications
  - Neurontin or Lyrica
  - Celebrex
  - Baseline analgesics including opioids with sip of water, leave on Fentanyl patches (Rozen & DeGaetano, 2006)
  - 0.25 mcg-0.5 mcg/kg dexmedetomidine range for bolus
- Regional Blocks – always consider in the addicted population
  - Localized, peripheral, central
- Pre-op ECG with methadone, even in young patients due to risk of Torsades- greatly increased risk if >200mg/day

Epidural Use in the Addicted/Opioid Tolerant Pt (Grewal et al., 2009)

- Standard solutions for lumber, higher concentration local for high thoracic
- Typically need supplemental Fentanyl PCA to prevent withdraw – now recommended, or replacement of baseline opioids

Intraoperative

- Use of more hydrophyllic drugs – hydromorphone
- Load patient with opioid when awakening if known tolerance (50% daily dose)
- Use of Precedex (dexmedetomidine) - 0.25 mcg/kg up to 0.5 mcg/kg dexmedetomidine infusion range per clinical judgment
- Low dose ketamine - 0.2mg/kg IV reduced morphine requirement in acute trauma patients in ED with severe pain 60/100 as compared to placebo (n=73)(Galinski et al., 2007).
- Local anesthetics prior to incisional closure
- Methadone IV?? - half-life 7-59 hours; post-op maintenance only; 1/1 ratio po to IV (MVH - 1, 20 ml vial stocked – 200 mg)
Post Operative Pharmacologic Management with Abuse History
(Peng, Tumber & Gourlay, 2005)

- Treat what is causing pain
- Replace baseline requirement (ie. methadone) & use different opioid for breakthrough to affect another mu receptor subtype
- Choose adjuvant meds based on type of pain reported by patient
- Regional blocks encouraged

Patients on Maintenance for Addiction History

- Data Addiction Treatment Act – 2000
  - Allows physicians to prescribe opioids for the treatment of opioid addiction in the normal course of practice
- Suboxone (approved by FDA in 2002 for tx of opioid addiction; clinical use began in 2003)
  - Buprenorphine/naloxone 4:1 ratio
  - Partial mu opioid receptor agonist, kappa antagonist
  - Sublingual use - naloxone only effective if drug used parenterally thereby reducing risk of abuse
- Subutex
  - Buprenorphine

Opioid Therapy and Chemical Dependency

- Use long-acting opioids with least abuse potential where possible
  - Methadone addictive but lower street value
  - Oxycodone 2nd only to heroin in street value - 100, 40 mg tablets = $4000.00
  - Fentanyl patches have less abuse potential
  - New formulations with embedded naloxone
- Continually assess pain to allow lowest effective dose to be used
Opioid Therapy and Chemical Dependency

- Agonist/Antagonist agents should not be used
  - Can precipitate withdrawal
- Propoxyphene should not be used
  - Low analgesic effects with high abuse potential
- Meperidine should not be used
  - Short duration and can induce seizures

Other Post-Operative Treatment Considerations

- Use adjuvants depending upon pain source
  - NSAID’s
  - Anticonvulsants
  - Other
- Consider mode of administration – orals earlier rather than later
- Monitor for drug interactions
  - Some agents effect metabolism of methadone, many drug-drug interactions
  - Consider psych evaluation

Other Treatment Considerations

- Monitor for drug interactions
  - Some agents effect metabolism of methadone, many drug-drug interactions
- Use least invasive route possible
- Ensure only one physician is prescribing pain medications
- Avoid using prn agents alone
- Ensure follow up after discharge
Post Operative Considerations for Symptom Management – consider Order Set Revisions

- Avoid drugs that depress the CNS:
  - Nausea - phenergan, droperidol
  - Sleep aids
  - Muscle relaxants – soma, flexeril, zanaflex
  - Benzodiazepines – ativan, valium, xanax (unless dependent)

- Use instead:
  - Nausea – zofran or anzemet
  - Sleep – tricyclic AD in low doses
  - Muscle relaxant – robaxin
  - Anxiety - atarax or vistaril

Non-pharmacologic Adjuvants

- Ice/heat
- Relaxation/Music therapy/Imagery/Distraction
- TENS
- Physical therapy/Occupational therapy
- Acupuncture
- Psychotherapy
- Nutrition therapy

State Law Regarding Prescribing Opioids

- Typically some type of regulations related to opioid prescribing
  - Ohio House Bill 187 (July, 1997)
  - Establish rules and standards for managing intractable pain with controlled substances
- Additionally some type of safety net for prescribing for patients in a terminal state
  - Sub. H.B. 474
  - Shall not “…prohibit a person from administering, prescribing, or dispensing meds. or treatments to relieve pain or discomfort, even if the medication or tx. may hasten or increase the risk of death…”

Pharmacologic Therapy in Chemical Dependency

- Opioid therapy has significant promise and substantial risks
- Requires clear approach from providers
  - Assessment and reassessment
  - Skillful drug administration
  - Knowledge of addiction-medicine principles
  - Documentation and communication

Dear God,
I bet it is very hard for you to love all of everybody in the whole world. There are only 4 people in our family and I can never do it.

Nan

Life is too short to waste time hating anyone.
Forgive everyone for everything.