Spare the Opioids and Achieve Improved Pain Relief: Current Issues in Multi-Modal Pain Therapies

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Disclosures:
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Objectives

- Identify factors leading to the shift from exclusive opioid use for pain management to multi-modal therapies.
- Describe the elements of multi-modal pain management.
- Discuss future trends in pain management.
Where have we come from??

<table>
<thead>
<tr>
<th>Condition</th>
<th>Number of Sufferers</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic Pain</td>
<td>116 million Americans</td>
<td>Institute of Medicine of The National Academies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>25.8 million Americans</td>
<td>American Diabetes Association (3)</td>
</tr>
<tr>
<td></td>
<td>(diagnosed and estimated undiagnosed)</td>
<td></td>
</tr>
<tr>
<td>Coronary Heart Disease</td>
<td>16.3 million Americans</td>
<td>American Heart Association (4)</td>
</tr>
<tr>
<td>(heart attack and chest pain)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stroke</td>
<td>7.0 million Americans</td>
<td></td>
</tr>
<tr>
<td>Cancer</td>
<td>11.9 million Americans</td>
<td>American Cancer Society (5)</td>
</tr>
</tbody>
</table>
Surveyed 200 U.S. cancer survivors

43% experienced pain since diagnosis, 20% suffered chronic, cancer-related pain at least two years later

Women had increased pain, more pain flares and were more depressed about the pain

African Americans reported higher pain severity and more treatment side effects

Cancer surgery most significant source of pain (53.8% for whites) and (46.2% for blacks)

Science Daily, 1/13/2011
Northwestern Medicine Study 2011

- Robert H. Lurie CCC in Chicago
- Lynne Wagner, MD, Co-investigator
- Presented 2011 American Society of Clinical Oncology Annual Meeting
- Most common symptoms reported by survivors:
  - Fatigue (16%), Disturbed Sleep (15%), Cognitive Difficulties (13%), Pain (13%)
- “It is acceptable for someone actively going through cancer treatment to have pain medications, but when they transition to being survivors, that acceptance goes away. If they ask for pain medication again, doctors may worry that they are getting addicted.” Wagner

Science Daily, 6/3/2011
Moryl, et al, 2010, Sloan–Kettering: Comprehensive information lacking about the prevalence of persistent pain, it is known to depend on the type of cancer, co-morbid conditions and the initial pain management.

Changing Winds

- Are long term opioids safe to use?
- How long is too long?
- Are all of years of work to control pain utilizing opioids coming to an end?
- Will there be limits on how much can be prescribed?
- Who can have it?
- What else can we use to control the pain?
- CDC, national health risk, prescription abuse
The CDC has flagged prescription painkiller abuse as a major health threat.

- The 2007 death rate has increased to 12 deaths per 100,000 people, roughly three times higher than in 1991.
- Hit hardest, high rates of poverty areas such as Maine and Kentucky.
- 7 deaths per day in Florida caused by overdose of prescription pain medications.
About 10-15% background rate of substance abuse

30% of adult population (80 Mil) has chronic pain
Increase in opioid abuse related to:

- Changes in medication prescribing practices
- Changes in drug formulations
- Easy access through internet

Estimates in the United States

- 4.5 million Americans used prescription pain relievers for non-medical reasons during the month they were surveyed (SAMHSA, 2012)
- Exceeded the number using cocaine and heroin
- Costing the government $467.7 billion per year
- 2.9 million initiates in 2012 (initiates are considered 1st time users in past 12 months), 65% marijuana, 26% prescription drugs (SAMHSA report, 2013)
Prescription Opioid Abuse

- Opioids bind to Mu receptors in the ventral tegmental area
  - GABA is inhibited
  - Dopamine release is increased
- Opioids bind to Mu receptors in the nucleus accumbens
  - Dopamine release is increased
  - Without GABA inhibition  
    (Ballantyne, LaForge, 2007)
Pregnancy Issues

- USA Today, 4/30/12
  Number of drug addicted newborns soars
  JAMA – 3.4 out of every 1,000 births born in 2009 suffered from some type of opioid withdrawal
  U of M – 13,539 infants per year or one drug addicted baby born every hour
  Treating drug addicted babies under Medicaid costs 720 million in 2009
  Most common drugs – vicodin and oxycontin
Proposed Hydrocodone Reclassification

- 2009 DEA asked HHS for recommendation whether to change the schedule hydrocodone combination products from Schedule III to Schedule II
- 2013, early December, FDA to submit formal recommendation package to HHS to reclassify hydrocodone combination products to Schedule II
Who is Responsible?

- Long term symptom management
- Surveillance
- Writing scripts
- Linking plan to function
In 2013, some fears remain:

- Addiction
- Diversion
- Respiratory Depression
- Cost
- Fear of opioids (Opioid-phobia)
Misconceptions: Tolerance, Dependence, Addiction

Resolving common misconceptions that may prevent adequate pain management

- Tolerance: larger dose required for the same relief
- Dependence: withdrawal causes “abstinence syndrome”
  - Can be avoided when patient complies with established refill schedule
- Addiction: craving of opioids for other than pain relief
  - Very low incidence in chronic pain patients
  - “Addiction-like” behavior may signal inadequate pain control or intensification, progression of pain
The Search for Middle Ground

- Striking the balance
- Safe prescribing
- Effective prescribing
  - Relationship with patient
    - MAPS
    - Medication Contracts
    - Pill Counts
    - UDS
    - Looking at amounts prescribed
    - Possible Schedule change of hydrocodone
    - DEA take back days
    - Always linking to function
    - Abuse resistant and deterrent medications
Michigan Automated Prescription System (MAPS)

- Replaces Official Prescription Program effective 1/1/03.
- Requires electronic reporting of all controlled substances in Schedules 2 thru 5 by pharmacies.
- Serialized (OPP) forms no longer required.
- Any healthcare provider with DEA # can have access to site, http://sso.state.mi.us/
Abuse-resistant Formulations

- Physical barrier has been introduced to minimize the chance that an abusable portion of active pharmaceutical ingredient can be extracted through physical or chemical manipulation.

Abuse-deterrent Formulations

- One or more pharmacologically active ingredients added to reduce the reward when the dosage form is physically or chemically manipulated.
Abuse-deterrent & Abuse-resistant Opioids

- (Remoxy™)
- (Oxycontin®)
- (Rexista™)
- (DETERx™)
- (Exalgo®)
- (Ultram® ER)
- (OxyNal™)
- (Acurox™)
- NRP290 Lysine-modified opioid prodrug
Think about using percentage of Relief
Assessment

- Allergies
- Opioid naïve versus opioid tolerant
- Previously effective pain medication
- Underlying medical conditions
- Sleep apnea/CPAP?/obese?
- Multiple surgeries
- History of issues; CIWA, Nicotine, Caffeine
- Current medications (excellent clue)
- Red flag medications
Special Considerations for the Elderly

- Baby boomers coming of age
- Opioid naïve?
- Avoiding morphine in patient with low GFR, rampant type II DM
- Sleep medications, alcohol, other drugs??
- Avoiding benadryl and other sedating agents
- Obesity? Sleep apnea?
- Longer life expectancy = More degenerative disease
- Gallup-Healthways Well-Being index, survey 1 million Americans, higher BMI more pain perception (68%).
Patient Pain History

- Site(s) of pain?
- Severity of pain?
- Date of onset?
- Duration?
- What aggravates or relieves pain?
- Impact on sleep, mood, activity?
- Effectiveness of previous medication?
Suboxone and Butrans

- Buprenorphine/naloxone - Suboxone, Butrans is Buprenorphine
- Restricted prescribing
- Also in patch form
- Antagonist, agonist
- Should be stopped at least 3-4 days pre-op
Recommendations-Moderate Risk
(Inpatient Acute Care)

- Buprenorphine: high affinity for mu opioid receptor

- Compete with other mu opioids given concurrently, which may lead to:
  - Inadequate analgesia by blocking effect of Mu opioids.
  - Opioid overdose: when buprenorphine plasma level declines with concurrent Mu opioids.
Individualize Care to Resident and to Resident Response

Right Agent

Right Dose

Pharmacologic Management

Right Route

Right Schedule

Types of Acute Pain

- Visceral
- Bone/Somatic
- Neuropathic
- Combination
- Surgical
Pharmacologic Interventions

- Match the type of pain with the intervention
- Put the patient back on accurate baseline medications
- Use adjuvants that are non-sedating
- All about function
Combination Analgesics

*Rationale*

- Multiple sites of action target multiple pain pathways
- Complementary pharmacokinetic activity
- Potentially synergistic analgesic effect
- Reduced adverse event profile with comparable efficacy

Skin Anatomy

NSAIDs - Cox 2
Think Bone/Muscular

- Patient descriptors
- Anti-inflammatory actions
- Parenteral form - Toradol
- Cautions
  - Platelets, GI, Renal
NSAIDs Mechanism of Action

COX = Cyclooxygenase; NSAID = Nonsteroidal anti-inflammatory drug; GI = Gastrointestinal.

Nonsteroidal Anti-inflammatory Drugs (NSAIDs)

- Inhibit both COX 1 & 2
- Analgesic, antipyretic, anti-inflammatory
- Initial analgesic effect - 1 hour
- Maximum anti-inflammatory effect - 2 wks
- Uses - rheumatoid arthritis, OA, pain, fever, bursitis, tendonitis
- ADRs - GI upset, ulceration, bleeding, renal failure, anaphylaxis
- Often individualized responses
NSAIDs

- diclofenac (Cataflam, Voltaren, Flector)
- diflunisal (Dolobid)
- etodolac (Lodine)
- flurbiprofen (Ansaid)
- ibuprofen (Motrin, Advil, Nuprin, etc)
- indomethacin (Indocin)
- ketoprofen (Orudis)
- ketorolac (Toradol)
- meloxicam (Mobic)
- meclofenamate (Meclomen)
- mefamemic acid (Ponstel)
- nabumetone (Relafen)
- naproxen (Naprosyn)
- piroxicam (Feldene)
- sulindac (Clinoril)
- tolmentin (Tolectin)
diclofenac Patch
Ketorolac (Toradol)

- NSAID
- IV dosing: <65 yrs. 30 mg IV q 6 hrs prn or scheduled
  >65 yrs. 15 mg IV q 6 hrs prn or scheduled
- Nasal dosing: <65 yrs. One spray, each nostril q 6-8 hrs.
  >65 yrs. One spray, one nostril q 6-8 hrs.
- Not to exceed 5 days total for all routes combined
Toradol (Sprix): 15.75 mg per spray, dose 2 sprays
Acetaminophen Update 2013

- Fall 2011: Ortho-McNeil to change labeling to reflect new dosing of Tylenol brand. Decrease from maximum 8 tabs per day down to 6 tabs per day maximum. (Non FDA mandated 3000 mgs.)

- Introduction of IV administered acetaminophen – Ofirmev

- Dosing <50 kgs: 15 mg/kg IV, >50 kgs: 1 g IV q 6 prn. Pain and fever dosing similar. Limit 4000 mgs in 24 hours
Neuropathic Pain Definition

Pain resulting from damage to peripheral nervous or central nervous system tissue or from altered processing of pain in the central nervous system
Neuropathic Pain

- Most difficult to treat
- May have allodynia component
- Described as burning, shock-like, stabbing, numbness
- Normally only response to very high dose opioids, not the medication of choice
Neuropathic Pain, cont.

- Can be treated invasively with local anesthetics, patch
- Drugs of choice are antidepressants, anticonvulsants and steroids
- Neurontin
<table>
<thead>
<tr>
<th>Topical Local Anesthetics and Their Available Preparations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzocaine</td>
</tr>
<tr>
<td>Cream</td>
</tr>
<tr>
<td>Ointment</td>
</tr>
<tr>
<td>Topical aerosol</td>
</tr>
<tr>
<td>Benzocaine and menthol</td>
</tr>
<tr>
<td>Lotion</td>
</tr>
<tr>
<td>Topical aerosol solution</td>
</tr>
<tr>
<td>Butamben</td>
</tr>
<tr>
<td>Ointment</td>
</tr>
<tr>
<td>Dibucaine</td>
</tr>
<tr>
<td>Cream</td>
</tr>
<tr>
<td>Ointment</td>
</tr>
<tr>
<td>Lidocaine</td>
</tr>
<tr>
<td>Film-forming gel</td>
</tr>
<tr>
<td>Ointment</td>
</tr>
<tr>
<td>Patch</td>
</tr>
<tr>
<td>Cream</td>
</tr>
<tr>
<td>Lidocaine/prilocaine</td>
</tr>
<tr>
<td>Cream</td>
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<tr>
<td>Lidocaine/tetracaine</td>
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<tr>
<td>Patch</td>
</tr>
<tr>
<td>Pramoxine</td>
</tr>
<tr>
<td>Cream</td>
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<tr>
<td>Lotion</td>
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<tr>
<td>Pramoxine and menthol</td>
</tr>
<tr>
<td>Gel</td>
</tr>
<tr>
<td>Lotion</td>
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<tr>
<td>Tetracaine</td>
</tr>
<tr>
<td>Cream</td>
</tr>
<tr>
<td>Tetracaine and menthol</td>
</tr>
<tr>
<td>Ointment</td>
</tr>
</tbody>
</table>

bupivacaine liposome (Exparel)

- (EXPAREL) should be infiltrated using the same technique surgeons already use to infiltrate local anesthetics
- (EXPAREL) can be administered using needles as narrow as 25 gauge
- Up to 72 hours of relief
- Breakdown of cartilage at delivery catheter site
- Variability of dose infusion
lidocaine 4%
Anticonvulsants

1) Inhibit sustained high-frequency neuronal firing by blocking Na+ channels after an action potential, reducing excitability in sensitized C-nociceptors.

2) Blockade of Na+ channels and increase in synthesis and activity of GABA, in inhibitory neurotransmitter, in the brain.

3) Modulates Ca+ channel current and increases synthesis of GABA.

(Vallerand, Sanoski & Deglin 2012)
Second-Generation Anticonvulsants as Adjuvant Analgesics

Gabapentin (Neurontin), starting 100 – 300 mg q hs, usual effective 900 – 3600 mg daily, divided, q 8 – 12 hrs.

Pregabalin (Lyrica), starting 150 mg daily, usually effective, 150 – 300 mg q 12 hrs.

Lamotrigine (Lamictal), starting 25 – 50 mg daily, usually effective, 200 – 400 mg daily.

Topiramate (Topamax), starting 25 mg daily, usually effective 100 – 200 mg q 12 hrs., start at hs.
Voltage Gated Ion Channels

- Calcium – main driver for most intracellular responses to stimulation
- Sodium – open sodium channels raise the membrane potential closer to firing
- Potassium – regulate axonal membrane to produce a negative hyperpolarized state before the resting potential is restored
Ion Channels

- **Sodium** transmits, voltage-gated
  - Nav1.7: mutations in the gene eliminate or exacerbate pain
  - Nav1.8: nociceptor specific, involved in pain
  - Congenital insensitivity to pain; ‘Life Without Pain’
  - Channels upregulated in chronic pain models
- **Acid-sensing ion channels**
  - Hydrogen ions activate
  - ASIC1, ASIC2, ASIC3, ASIC4
  - ASIC1/ASIC3 plays a role in musculoskeletal pain
- **TRPV1**
  - Activated by capsaicin, decreases in pH, heat
  - Mediates heat hyperalgesia
  - Capsaicin cream as a treatment
lidocaine 5% Patch
LPARSIPPPANY, N.J., May 29, 2012 /PRNewswire/ -- Watson Pharmaceuticals, Inc. (NYSE: WPI) today announced that its subsidiary, Watson Laboratories, Inc., has entered into an agreement with Endo Pharmaceuticals Inc. and Teikoku Seiyaku Co., Ltd to settle all outstanding patent litigation related to Watson's generic version of Lidoderm®. The agreement allows Watson to launch its lidocaine topical patch 5% product on September 15, 2013, if approved by the U.S. Food and Drug Administration (FDA). The license will be exclusive as to an authorized generic version of Lidoderm until the earlier of a third party generic launch or seven and one half months after Watson's launch of its generic product. Endo will receive 25% of the gross profit generated on Watson's sales of its generic version of Lidoderm® during Watson's period of exclusivity.
capsaicin OTC

- Hot peppers
- May deplete & prevent re-accumulation of substance P in primary afferent neurons responsible for transmitting painful impulses from peripheral sites to the CNS.
- Absorption, distribution, metabolism & excretion, half life – unknown
- May produce transient burning with application, usually disappears in 2-4 days, but may persist for several weeks.
Schedule of Controlled Substances

- Established by the DEA
- Based on abuse and dependence liability
- States may have stricter regulations
- **Schedule I (C-I)** – potential for abuse so high as to be unacceptable
  - LSD, heroin
  - marijuana, acceptable?
Michigan Marihuana Program (MMMP)

- State Registry program
- Michigan Medical Marihuana Act
  Approved by Michigan voters 11/4/08
- Michigan resident
  18 years old
- Completion of application
- $100.00 fee
- “Attending Physician’s Statement”
- Debilitating medical condition
Current Numbers

- Program Statistics as of 5/31/2013:
  - 402,688 original and renewal applications received since April 6, 2009.
  - 128,441 active registered qualified patients.
  - 26,875 active registered primary caregivers.
  - 33,747 applications denied -- most due to incomplete application or missing documentation.
  - “Hey Linda, where are my seeds?”
Cannabinoid & Opioid Synergism

- Combination cannabinoid-opioid therapy maybe effective for neuropathic pain
- The two systems may work synergistically in converging brain pathways.
- The cannabinoids have a distinct mechanism of action, targeting ubiquitous cannabinoid (CB) receptors in the central nervous system and periphery
- Opioid analgesics less effective for neuropathic pain
Visceral Pain – Think Opioids!!!

- **Steady State is Vital!**
- **IVP, PO, Continuous Infusion, Rectal, PCA, Epidural, SubQ, Sublingual, Buccal, Nasal, Endotracheal**
- **PCA - patient-controlled, staff-controlled, basal**
- **Transdermal**
Lots of Opioid Confusion

- Immediate Release, short acting
- Sustained Release, the Contins, the Cets
- Off parenteral for 24 hours prior to discharge
- Use oral if possible
- Prepare for discharge from minute one
- Don’t order a medication without checking insurance coverage
- Patient buy in to pain management plan
- Who is going to write discharge scripts???:
- Pain Management Consult---do you really want it???
Time-Contingent vs. As-Needed Dosing

OPIOIDS

DOSING ISSUES

- Opioids undergo first pass metabolism in the liver, so oral doses are higher than injectable. Potencies vary from one agent to another, also, which must be considered when converting a patient to a different opioid. (Refer to equianalgesic table)

- Fentanyl patch 25mcg/hr is roughly equivalent to 50mg/24hrs of oral morphine.
## Equianalgesic Opioid Doses

<table>
<thead>
<tr>
<th>Drug</th>
<th>Oral</th>
<th>Intravenous</th>
</tr>
</thead>
<tbody>
<tr>
<td>morphine</td>
<td>30 mg</td>
<td>10 mg</td>
</tr>
<tr>
<td>codeine</td>
<td>200 mg</td>
<td>120 mg</td>
</tr>
<tr>
<td>hydrocodone</td>
<td>20 mg</td>
<td>Not available</td>
</tr>
<tr>
<td>hydromorphone</td>
<td>7.5 mg</td>
<td>1.5 mg</td>
</tr>
<tr>
<td>oxycodone</td>
<td>20 mg</td>
<td>Not available</td>
</tr>
</tbody>
</table>
Background

- Human Genome Project Started in 1990 in effort to sequence the entire genome
  - 3 billion base pairs in human genome
  - 3 million are different among individuals
  - People are 99.5% identical
  - Cost of project: half a billion dollars
  - Map completed in 2003, with the final chromosome sequenced in full in 2006. Used many donors.
  - Private companies were also sequencing, and in 2007, Craig Venter published his entire sequence.
The difference in 0.5% can lead to predictions about disease
  - Colon cancer (hereditary nonpolyposis colon CA)
  - Diabetes
The difference in 0.5% can lead to predictions about medication efficacy
  - Cancer treatments and doses
  - Pain
Genotyping

- Allows you to discover which genetic variants you possess
- Uses chips/arrays to assess for several known things
Full Genome Sequencing

- Stephen Quake
- Bioengineer at Stanford University
- First person to undergo full genome sequencing for disease linkage
- Had entire genome checked for disease risk and response to medications
- Took 18 months of full time bioinformatics professionals to assess his risk
- Cost about $50,000
  - Now you can do it for $10,000 (Complete Genomics, CA)
Single Nucleotide Polymorphisms (SNPs)

- DNA sequence variation at a single location in the genome
- Usually represents only two alleles
- Can vary across geography, ethnicity
Some SNP examples

- rs1815739 sprinters vs endurance athletes
- rs4481887 “asparagus anosmia”, the inability to smell the methanethiol produced after eating asparagus
- rs7412 and rs429358 can raise the risk of Alzheimer’s disease by more than 10x
- rs6152 can influence baldness
- rs333 resistance to HIV
- rs1800497 in a dopamine receptor may influence the sense of pleasure
- rs1805007 determines red hair and sensitivity to anesthetics
- rs9939609 triggers obesity and type-2 diabetes
- rs6627999 prevents weight gain from high fat diets
- rs7495174 green eye color and rs12913832 for blue eye color
- rs7903146 in 3% of the population greatly increases the risk of type-2 diabetes
- rs12255372 linked to type-2 diabetes and breast cancer
- rs1799971 makes alcohol cravings stronger
- rs17822931 determines earwax
- rs4680 varied cognitive effects
- rs1333049 coronary heart disease
- rs1801133 folate metabolism and several cancers
- rs1051730 and rs3750344 nicotine dependence
- rs3057 perfect musical pitch
- rs4988235 lactose intolerance
A patient may have a genetic variation that makes the drug stay in their body longer than usual causing potential serious side effects. Or, they may have a variation that makes the medication less potent.

Genes, which are segments of DNA, can determine how you react to medication. 1

A patient may have a genetic variation that makes the drug stay in their body longer than usual causing potential serious side effects. Or, they may have a variation that makes the medication less potent. 1
Killer or Cure?

“All things are poison and nothing is without poison. Only the dosage distinguishes the killer from the cure.” (loose translation from the original German) – Paracelsus, Swiss Scientist (1493 – 1541) 

“The hope is that through a person’s genetics, we can minimize the trial-and-error process and quickly identify the drug therapy that will work best for that person.”

Julie Johnson, Clinical Pharmacist, University of Florida, PGRN Member

http://publications.nigms.nih.gov/findings/mario/rightfit.asp
50% of Beta Blockers work the first time \(^2\)

60% of Depressed patients do not respond fully to the first prescribed Medication \(^3\)

**Methadone represents less than 5% of all opioid prescriptions, but is responsible for a third of the deaths.** \(^4\)

There is a 20 fold difference in the dosages of warfarin required to achieve therapeutic effect while the plasma concentrations vary 30-50 fold among individuals receiving the same dose. \(^5\)
Genetic Polymorphism

- UGT 1A1; involved in the glucuronidation of morphine, buprenorphine, and nalorphine.
- UGT 1A3/1A4; glucuronidation of TCA.
- UGT 2B7; glucuronidation of benzodiazepines.

- Genetic polymorphism: population distribution for inheriting liver enzyme activity controlled by a single gene locus.

**CYP 2C19** approx. 18% Japanese and African Americans, 3-5% of whites, poor metabolizers with higher plasma conc. of drug substrates.

Ex. Diazepam, imipramine, and phenytoin.

**CYP2D6** 7-10% whites, 1-4% African Americans inherit autosomal recessive allele on chromosome 22 results in poor metabolism with higher plasma conc., prolonged half lives. Ex. Codeine-cannot convert codeine to morphine, paroxetine, venlafaxine, fluoxetine, desipramine, imipramine, nortriptyline and oxycodone.

(Core, 2002),
(Cleary & Hogan, 2007)
The Joint Commission

Sentinel Event Alert, Issue #49

• Issued August 8, 2012
• JC Database (2004-2011): 49% wrong dose medication error, 29% improper monitoring, 11% other factors, i.e. medication interactions, excessive dosing, adverse drug reactions
• Evidence-based, specific actions recommended
Effective processes

- Create and implement P & P for assessment, monitoring, pulse oximetry, capnography
- Create and implement P & P for second level review by pain specialist or pharmacist of pain management plans for high risk opioids
- Create and implement P & P for tracking and monitoring opioid-related incidents for QI

Safe Technology

- Tall Man lettering, conversion support, PCA, smart pumps, pyxis

Appropriate Education and Training

- Use of adjuvants and non-pharmacologic agents, opioid sparing
- Educate all staff concerning opioid therapy side effects
- Patient and family education
- Training on near misses and adverse events

Effective Tools

- Standardize sedation and screening tools
Sedation

- Hallmark of opioid use
- Aldrete, RASS and POSS
- Recovery Room – very tricky!
- Pulse Ox, false sense of security
- RR and Depth
- end tidal CO₂
- Ask the question, “Do you feel drugged?”
Respiratory Depression

- How frequent is it?
- First sign of trouble
- Careful of combinations
- IM injections result in less potential for respiratory depression, true or false
- How do you treat it?
Careful when combining medications, especially sleepers, sedatives, muscle relaxants, and other medications that tend to cause sedation.
Subcutaneous Methylnaltrexone

New Drug Application filed 5/30/07, approved in 2008

- For treatment of opioid-induced constipation in patients receiving palliative care
- Peripherally acting mu-opioid receptor antagonist
- **Without interfering with pain relief**
- Single use, pre-filled syringes introduced 2010
- Phase III, oral formulation development for chronic, non-cancer pain patients
- Patents and applications expirations ranging from 2017-2031
Integrative Therapy

- Ice/Heat
- Massage
- Distraction
- Music Therapy
- Positioning and Splinting
- Pet Therapy
- Hydo Therapy
- Aroma Therapy
Not just because of HCAHPS

- Always Safety first; don’t forget to tell family
- Narcan administration in an opioid tolerant patient
- Let patients know that their comfort is a priority
- Pre-medicate for painful procedures
- Drop the bias
- Displaying a caring attitude
- Think multi-modal
- Pain relief is *Everybody’s* business!
Caring Behaviors in Pain Management

- Establishing a caring relationship in pain management:
  - Frequent patient encounters
  - Opportunity to meet family members
  - One of the most vulnerable times
  - Desperately seeking help and hope!
  - The feeling of being alone