

Pain in End of Life Care: Barriers, Principles and Goals

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November 19th, 2014
FOCUS Conference
Wisconsin Dells, WI

OBJECTIVES

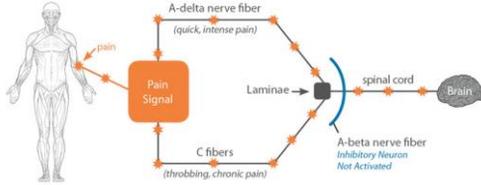
Participants will learn:

1. Barriers and stigmas related to end of life pain control.
2. The key differences and appropriate medications used to treat varying pain ailments.
3. Use of evidence based medicine to develop and implement patient- specific treatment modules to manage end of life pain.

The Basics

- * Palliative care consists of treatment and support to improve QUALITY OF LIFE for the patient and their families, by reducing suffering¹
- * In a cross- sectional, stratified random national survey of seriously ill patients, recently bereaved family members, physicians, and other healthcare workers, over 70% of each group identified freedom of pain as the most important attribute of care ($P < 0.001$)²

What is Pain?



<http://www.biofreeze.com/page/en/Mechanism-of-Action.aspx>

The Numbers

- * In 2014, 14.5% of the US population is aged 65 or older³
- * Estimated that 45-85% of this population experiences pain, much of it undertreated², which can cause unwanted effects
 - * 76-90% of hospice patients have pain documented⁴
- * Cost for repeat hospitalization and physician visits can be staggering
 - * Over 50% of patients die in the hospital though some may prefer to die at home¹

Richard

Richard is a 84 yoM, with end stage Alzheimer's. With great thought and deliberation, the family has elected hospice care. Despite use of appropriate medications for his agitation, Richard continues to lash out and retract from patient care. His healthcare team continues to titrate his agitation/ anxiety medications, and at times, IM administration is given, yet nothing is effective.

WHAT ARE WE MISSING?

Book Smart

- * What are we teaching in healthcare schools?⁶
- * Limited at best
 - * Passed on from one generation to the next, virtually unchanged despite numerous advances and theories
- * Cultivation and propagation of ignorance
- * Balance of 'good physician' with 'good patient'

Book Smart

- * Widespread lack of knowledge to nursing and pharmacy school
- * Medical and geriatric texts say very little about pain management
 - * Few psychometric instruments have yet to be standardized for evaluation of pain in elderly⁵

Legal Ramifications

- * With the lack of knowledge, comes the fear of prescribing opioids
- * To avoid regulatory scrutiny, clinicians under-prescribe to stay 'under the radar'
- * Physician's duty: to prevent drug diversion vs. managing pain⁶
 - * Acute vs. chronic pain
 - * Acute pain: short PRN medications
 - * Chronic pain: use of sustained release medications for an extended amount of time, which may require frequent titration

Ethical Question

- * Moral authority & responsibility to treat pain as a true symptom
- * Healthcare professionals that purposely avoid to manage pain effectively due to lack of skill or fear may be in a violation of ethics
 - * Initiating new medication
 - * Lowering doses
 - * Using less effective analgesics, when not indicated

Debunking the Current Legal Myths⁸

Myth	Reality
Forgoing life- sustaining treatment without capacity requires evidence	A surrogate may delegate decisions; few states require 'clear and convincing evidence'
Withholding artificial nutrition/ fluids is illegal	May be withheld if patient refuses or a surrogate may delegate decisions
Risk management personnel must be consulted prior to termination of life-sustaining treatment	No legal requirement (may be location specific policy)
Advance directives must be particularly stated	May be used, even if all legal formalities not met; oral statements made by patient may suffice

Debunking the Current Legal Myths⁸

Myth	Reality
Criminally prosecuted, if healthcare professional prescribes/ administers high doses of medication for symptom management resulting in death	Healthcare worker has not committed murder or assisted suicide
No legal permissible options to ease suffering/ hasten death for terminally ill patient	While physician- assisted suicide illegal in most states, terminal sedation is not
1997 Supreme Court decisions outlawed physician- assisted suicide	Legal in Oregon; each state are free to legalize or prohibit it

Richard

The healthcare team has now decided to increase the MS Contin to 45mg PO BID and morphine IR 15mg Take 1-2 tabs PO q4h PRN pain. Before initiating this regimen, the family now intervenes, and does not want 'this much morphine' for their elderly father.

Family Limitation⁶

- * Fear of 'hospice' or 'morphine'
- * Admission of hospice is equivalent to giving up
- * Willing to try invasive techniques or tests to 'keep dad comfortable' or to cure
- * Cultural sensitivity
- * Family's discord can lead to a misrepresentation of pain (or other symptoms)
- * Assuming the role of caregiver

When is it too much?

- * Irrational belief regarding addiction, dependence & tolerance
 - * Outliers define practice
 - * Opiophobia⁵
- * The difference between dependence that develops to opioid analgesics vs. the dependence that characterizes addiction⁶
 - * Need for higher doses is likely related to the progression of disease
- * Fewer than 1/20,000 patient prescribed opioids become addicted⁵
- * Recent hydrocodone rescheduling to Schedule II

Study of Family Caregivers⁹

- * Use of The Barriers Questionnaire
 - * 62-100% of caregivers reported some type of concern
 - * Subscales:
 - * Fear of opioid side effects
 - * Fear of Addiction
 - * Belief that increased pain signifies disease progression and therefore hesitance to report pain⁴
 - * Fear of injections
 - * Most caregivers who were older and less educated believed that reporting pain may distract the physician from 'curing' the cancer
 - * Good patients do not complain

Corrective Actions

- * Barriers:
 - * Current continuum of the healthcare model
 - * Educating health care facilities of the GOALS of end of life care (comfort vs. cure)
 - * Change in the patient
 - * Clear & timely discussion about pain management, aging process & what to expect with the patient with respect and dignity

Corrective Actions

- * Barriers (con't)
 - * Limitation of proper end of life pain management in school
 - * AMA secured a project: Physicians on End-of-Life Care (EPEC)
 - * A push towards EOL modules in all healthcare classroom & residency study
 - * Fear of regulation scrutiny
 - * Obtain clear guidance from federal & state regulatory agencies
 - * Establish policies & protocols
 - * *Motivate truly caring clinicians to organize & challenge regulatory scrutiny*

Corrective Actions

- * Barriers (con't)
 - * Family limitations
 - * Grief or family counseling
 - * Educational pamphlets & discussion
 - * Recent study found that 35% of hospice patients & 20% of families reported receiving inadequate emotional support. Same study found >30% of families had concerns regarding the information that was supplied to them.⁴
 - * Irrational beliefs regarding addiction, dependence, & tolerance
 - * Insightful pain management
 - * EDUCATION!

Pain Evaluation¹

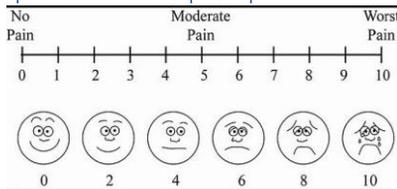
- * Begins with recognizing, evaluating & monitoring pain
- * Achieving pain control requires knowledge and skills on pharmacologic, behavioral, social & communication strategies
- * Frequent communication with the family seeks to address medical progress & to adjust plan of care or goals

Pain Scale

Numeric pain scale

Wong Baker Scale with faces

- * Useful in patients that are coherent and could specifically analyze and gauge pain
- * Important to ask for description of pain



Accessed through fpnotebook.com

Pain Scale¹⁰

Nonverbal Pain Scale, based on Faces, Legs, Activity, Cry, Consolability Scale

Categories	0	1	2
Face	No particular expression or smile	Occasional grimace, tearing, frowning, wrinkled forehead	Frequent grimace, tearing, frowning, wrinkled forehead
Activity (movement)	Lying quietly, normal position	Seeking attention through movement or slow, cautious movement	Restless, excessive activity and/or withdrawal reflexes
Guarding	Lying quietly, no positioning of hands over areas of body	Splinting areas of the body, tense	Rigid, stiff
Physiology (vital signs)	Stable vital signs	Change in any of the following: * SBP >20 mm Hg * HR >20/min	Change in any of the following: * SBP >30 mm Hg * HR >25/min
Respiratory	Baseline RR/SpO ₂ Compliant with ventilator	RR >10 above baseline, or 5% ↓ SpO ₂ ; mild asynchrony with ventilator	RR >20 above baseline, or 10% ↓ SpO ₂ ; severe asynchrony with ventilator

Abbreviations: HR, heart rate; RR, respiratory rate; SBP, systolic blood pressure; SpO₂, pulse oximetry.
Instructions: Each of the 5 categories is scored from 0-2, which results in a total score between 0 and 10. Document total score by adding numbers from each of the 5 categories. Scores of 0-2 indicate no pain, 3-4 moderate pain, and 7-10 severe pain. Document assessment every 4 hours on nursing flow-sheet and complete assessment before and after intervention to maximize patient comfort. Sepsis, hypovolemia, hypoxia need to be excluded before interventions.

Pain Scale¹⁰

Critical Care Pain Observation Tool

Indicator	Description	Score	
Facial expression	No muscular tension observed	Relaxed, neutral	0
	Presence of frowning, brow lowering, orbit tightening, and levator contractor	Tense	1
	All of the above facial movements plus eyelid tightly closed	Grimacing	2
Body movements	Does not move at all (does not necessarily mean absence of pain)	Absence of movements	0
	Slow, cautious movements, touching or rubbing the pain site, seeking attention through movements	Protection	1
	Pulling tube, attempting to sit up, moving limbs/ thrashing, not following commands, striking at staff, trying to climb out of bed	Restlessness	2
Muscle tension Evaluation by passive flexion and extension of upper extremities	No resistance to passive movements	Relaxed	0
	Resistance to passive movements	Tense, rigid	1
	Strong resistance to passive movements, inability to complete them	Very tense or rigid	2
Compliance with the ventilator (intubated patients) OR Vocalization (extubated patients)	Alarms not activated, easy ventilation	Tolerating ventilator or movement	0
	Alarms stop spontaneously	Coughing but tolerating	1
	Asynchrony: blocking ventilation, alarms frequently activated	Fighting ventilator	2
Vocalization (extubated patients)	Talking in normal tone or no sound	Talking in normal tone or no sound	0
	Sighing, moaning	Sighing, moaning	1
	Crying out, sobbing	Crying out, sobbing	2
Total, range		0-8	

The Changing Patient^{2, 11}

- * May be more sensitive to severe pain
- * Delays
- * Decreased tolerance
- * Evolving physiology that occurs with aging
- * Structure, biochemical and functional changes in the peripheral nervous system
 - * Decrease in fibers
 - * Reduction of neurotransmitter systems
 - * Slowing in nerve conductivity
- * Changes in drug metabolism
 - * Renal/ hepatic
- * Volume of distribution

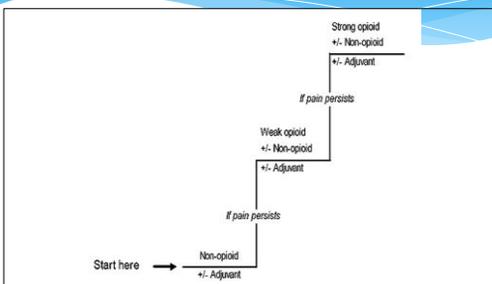
The Changing Patient^{2, 11}

- * Cognitive impairment
- * Multiple co-morbidities, therefore many medications
- * Atypical presentation of pain
 - * May choose not to report pain due to fear of involuntarily hospitalization, subject to invasive procedures or could be intimidated by their clinician
- * Older patients could be misinformed about pain management and analgesics

Treating Pain in the Elderly

- * According to the American Geriatric Society¹¹
 - * Use the least invasive route of administration
 - * Choose sustained release medications
 - * Introduce one agent at a time; start low & titrate slowly
 - * Allow a sufficient interval to assess the validity of the pain medication
 - * Treatment should be monitored & adjusted accordingly
 - * Switch opioids as necessary

World Health Organization: Step Wise Approach¹²



Types of Pain¹²

- * Nociceptive Pain
 - * Muscle, tissue or organ pain
 - * May or may not radiate
 - * Patient may describe as dull, aching, or throbbing
- * Neuropathic Pain
 - * Nerve pain
 - * Shooting, stabbing, radiating
- * Bone pain
 - * Inflammatory pain
 - * Pain with movement

Pharmacological Options^{12,13}

- * Pharmacologic treatment by type of pain
 - * Nociceptive: NSAIDS, opioids, combination
 - * World Health Organization (WHO) guidelines
 - * Morphine (#1 recommended for severe pain)
 - * Neuropathic
 - * Anticonvulsants
 - * Antidepressants
 - * NMDA Antagonist: Methadone
 - * Bone pain:
 - * Anti-inflammatory
 - * Decrease osteoclast activity

Mild Nociceptive Pain¹²

- * Arthritis, 'old age aches', mild headaches
- * Acetaminophen
 - * Max 3,000mg per day in the elderly
 - * Liver impairment
- * NSAIDS
 - * Cox 1&2 mixed
 - * Ibuprofen, Naproxen, Meloxicam
 - * Cox 2 Inhibitors
 - * Celecoxib
 - * Renal/ cardiac/ GI concern

Moderate- Severe Nociceptive Pain¹²

- * Moderate
 - * Tramadol
 - * Opioid/Non-opioid combinations
 - * Hydrocodone/APAP
 - * Oxycodone/APAP
 - * Watch APAP content

- * Severe
 - * Pure opioid
 - * IR and ER
 - * ER formulations should be used for chronic nociceptive pain

Clinical Considerations¹²

- * Routes of administration:
 - * Orally: NSAIDs, opioids, others
 - * Topically: Lidocaine, Capsaicin cream/lotion, Fentanyl TD patch
 - * Rectally: Acetaminophen supp, Methadone, Morphine SR tabs, most orally administered IR opioids
- * Patient-specific parameters
 - * Body composition (height, weight, skin turgor, SC tissue)
 - * Renal/Hepatic function
 - * Environment of care, ambulation status
 - * Is anxiety contributing?

Opioids in Pain Management¹³

- * Three receptor groups in the CNS and peripheral tissues
 - * All have supraspinal & spinal analgesia
 1. Mu receptor: Euphoria, Miosis, sedation, constipation, respiratory depression, addiction, hormonal changes
 2. Kappa Receptor: Diuresis, sedation, miosis, dysphoria, psychomimetic effects, respiratory depression, constipation
 3. Delta Receptor
- * All opioids are effective for managing nociceptive pain
- * Methadone is the most effective opioid for neuropathic pain

Opioid Kinetics¹³

- * Peak concentration in plasma after
 - * PO administration ≈ 60 minutes
 - * SC/ IM administration ≈ 30 minutes
 - * IV administration ≈ 6 min
- * Half-life at steady state
 - * PO / PR / SC / IM / IV ≈ 3-4 hours
- * Steady state is attained after 4-5 half-lives
- * Duration of effect of "immediate-release" formulations
 - * 3-5 hours PO / PR
 - * Shorter with parenteral bolus
- * Notable exception to the rule: Methadone

Clearance¹²

- * All opioids conjugated by liver
- * 90%-95% excreted in urine
- * Renal failure & severe hepatic failure
 - * Lower doses and/or less frequent dosing intervals suggested
 - * Avoid morphine in patients with oliguria & anuria

Renal Function^{12,14}

- **CrCl = 10-30ml/min**
 - Oxycodone
 - Methadone
 - Hydromorphone
 - Fentanyl
 - Buprenorphine
 - **Morphine
- **CrCl < 10ml/ml**
 - Oxycodone
 - Methadone
 - Fentanyl
 - Buprenorphine
- **CrCl > 40ml/min**
 - Oxymorphone
 - Morphine
 - Hydromorphone
 - Methadone
 - Fentanyl
 - Buprenorphine
- **CrCl = 30-40ml/min**
 - Oxycodone
 - Hydromorphone
 - Methadone
 - Fentanyl
 - Buprenorphine
 - **Morphine

Morphine¹⁵

- * **WHO: Gold standard for acute pain/SOB**
- * Variety of dosage forms (solution, ER, IR)
- * May be used acutely in end stage patients (prognosis ~ 7 days) with severe renal impairment
- Oral : rectal bioavailability is approximately equivalent¹³

But I'm allergic to Morphine???



Structural Classes of Opioids¹³

OPIOIDS		
Class I	Class II	Class III
Morphine*	Fentanyl***	Methodone***
Codeine*	Meperidine***	Propoxyphene***
Oxymorphone**		
Oxycodone**		
Hydromorphone**		
Hydrocodone**		
Buprenorphine**		

*Natural

**Semi-Synthetic

*** Synthetic

Semi- Synthetic Opioids^{12,13}

- * Oxycodone
 - * Available as ER and IR formulations
 - * May be a viable option for a 'morphine' allergy, or renal impairment
 - * Oxycodone ER cannot be given PR
 - * § (IR tabs); \$\$\$ (concentrated solution and ER formulation)

Semi- Synthetic Opioids^{12,13}

- * Hydromorphone
 - * Available as ER and IR formulations
 - * Tends to be 2nd line therapy for breakthrough pain
 - * Kinetics allow it to be dosed a bit further apart (ie q6h, versus q4h)
 - * Oral: rectal bioavailability approximately equal
 - * FDA dosing interval for rectal HM is 6 hours
 - * \$\$
- * Oxymorphone (Opana®)
 - * \$\$\$
- * Buprenorphine
 - * Available as a patch and IV
 - * \$\$\$

Routine Oral Dosing¹⁶

- * Long acting opioid agents
 - * Improve compliance, adherence
 - * Calculate TOTAL daily dose from PRN, convert opioid (as needed), adjust for incomplete cross tolerance, and dose q8h, q12, or q24h (product specific)
 - * Don't crush or chew tablets
 - * Once steady state is achieved, can titrate dose

Breakthrough Pain¹⁶

- * Use immediate-release opioids
 - * 5%–15% of 24-hour dose (typically derived from oral morphine equivalents) every 2-4h
 - * Can adjust dose daily (both routine and PRN)
 - * mild / moderate pain ↑ 25%–50%
 - * severe / uncontrolled pain ↑ 50%–100%
 - * Adjust more quickly for severe uncontrolled pain
- * Do NOT use extended-release opioids

SAMPLE Equianalgesic Dosing^{16,17}

GENERIC NAME	TRADE NAMES	SC, IV/24 hr	ORAL/24 hr
Morphine Sulfate	Roxanol, MS Contin, MSIR	10 mg	30 mg
Oxycodone	OxyContin, Roxicodone, Oxyfast, in Percocet, Roxoet, Tylox	-	20-30 mg
Hydromorphone	Dilaudid	1.5	7.5 mg
Hydrocodone	In combinations Vicodin, Norco, Lortab, Lorcet	-	30 mg
Oxymorphone	Opana	1 mg	10 mg
Codeine		130 mg	200 mg
Meperidine	Demerol	75 mg	300 mg
Tramadol	Ultram	-	150 mg
Tapentadol	Nucynta	-	100 mg
Fentanyl Injection	Sublimaze	300 mcg	-
Fentanyl Buccal Lozenge	Actiq	-	1000 mcg
Fentanyl Buccal Tablet	Fentora	-	250 mcg
Fentanyl Transdermal	Duragesic	see chart below	see chart below

Incomplete Cross Tolerance¹¹

- * Occurs when switching from one opioid to another
- * Likely due to subtle differences in the molecular structure or the interaction of receptors
 - * May be a difference in equianalgesic dosing and ratio
- * Start with about **75%** of the published dose of the new opioid to compensate
 - * 75% is an estimate, and should be based on the patient's individual traits and current status (ie pain crisis vs. being comfortable)

Case #1

JJ is a 75 year old female with end stage breast CA and mets to the lungs. She reports pain 8/10, & is 'hurting' all over. She has mild renal insufficiency, with no liver impairment. She weighs about 150lbs, with no problems swallowing. She has been taking Percocet 5mg/325mg at least 5x daily for the last couple of days.

Case #1

- * MS Contin 15mg PO BID
- * Morphine or Oxycodone 5mg PO q4h PRN pain
- * What are some of the side effects we should educate the patient about?

Side Effects¹²

- PLAN ON...
- CONSTIPATION!
- Less common
- Itching
 - caused by opioid-induced histamine release & is often mistaken for an allergy
 - Nausea and vomiting
 - Respiratory depression
 - Tolerance usually develops quickly and sedation occurs BEFORE depression
 - Risk factors
 - Myoclonus
 - With very high doses
 - Hallucinations

Fentanyl¹²

- * **Distribution:** Very lipophilic
- * **Half-life:** With multiple applications: 13-22 hours
- * **Onset of Action:** 12-24 hours
- * **Steady state:** 6 days (2 applications)
- * **Available:** 12, 25, 50, 75, 100 microgram patch
Also comes in injectable, lozenge, spray solution
- * **Duration:** 72 hours
 - * Some patients require Q48 hour dosing & increased use of PRN breakthrough pain medication

To Fentanyl or To Not Fentanyl?¹²

Pros

- * Patch: Apply and forget it
- * Variety of dosage forms

Cons

- * Unpredictable absorption = poor pain control
- * Body fat required for adequate absorption
- * Elevated temperature causes changes in absorption
- * Patches may become dislodged
- * Effects may last up to 24 hours after removal
- * Not suitable for unstable/ acute pain

Fentanyl Dosing¹²

Age/Body Composition	Fentanyl patch (mcg/hr)	Morphine PO (mg)
Adult, normal wt, non-cachectic	100	180-200
Elderly & thin, non-cachectic	100	120
Cachectic patient	100	90

Case #2

MR is a 91 year old woman with an end-stage malignancy. She had been maintained on transdermal fentanyl 25 mcg every 3 days. Her pain progressed, & the fentanyl was increased to 50 mcg, and then 75 mcg. Not using anything for BTP. Unfortunately, the recent dosage increases did not appreciably result in pain relief.

MR is 5'4", & weighs 78 pounds, with the ability to swallow tablets and capsules, and the physician would like to switch her to oral long-acting morphine.

What do you think we can recommend?

Case #2

* For elderly, cachectic patient ... 100 mcg/hr Fentanyl patch is equivalent to 90 mg morphine

* Pharmacist recommends discontinuing Fentanyl patch and starting ...

* MSContin 30mg po BID (for long-acting pain control)

* Morphine 20mg/mL Take 5-10mg SL q2h PRN breakthrough pain/sob

Methadone¹⁵

One of the preferred long-acting opioids in end of life care

- Multiple routes of administration
 - **PO, SL, PR, PV, SQ, IV, IM**
- Unique receptor affinity
 - Most effective opioid for neuropathic pain
 - Less cognitive impairment and euphoria than other opioids
- Appropriate option for patients with renal or hepatic impairment
- Consider for patients with a morphine allergy/intolerance



Methadone Dosing in 5 MINUTES!



5 Minutes to Methadone¹⁵

The Patient

- * Easy to administer – via all routes
- * Always double-check drug-drug interactions
 - * Pharmacist
- * Evaluate for CI cardiac factors (fluctuating electrolytes, pacer, noncompliance) & compare risk vs. benefit
- * Smoker
- * Adipose tissue



5 Minutes to Methadone¹⁵

The Pain

- * OPQRST (Onset, Provocation/Palliation, Quality, Region/Radiation, Severity, Time)
- * What total dose of opioid are they currently taking (LA + IR)?
- * What does that do to the OPQRST?

Opioid Assessment¹²

- * Assess for:
 - * Lack of therapeutic response
 - * Up to 30% of patients show poor responsiveness to a given opioid during routine administration
 - * Development of adverse effects
 - * Change in patient status
- * Dose titration is critical to successful therapy and pain control
 - * NO SIZE FITS ALL
 - * No "MAXIMUM" dose of opioids

GOAL: increase dose *until* PAIN RELIEF OR INTOLERABLE side effects occur

Increasing Opioids¹²

- * Evaluate pain intensity rating
 - * if mild - moderate pain (<5/10)
 - * increase by 25-50%
 - * if moderate - severe pain (>5/10)
 - * increase by 50-100%
 - * Can be titrated q2-4h for unrelieved pain
- * Evaluate use of breakthrough analgesic
 - * increase long acting if using > 3-4 BT doses
 - * increase "rescue" dose as baseline dose increases

Case #3

Mrs. Smith is a 92 year old woman with COPD, currently receiving MS Contin 45mg po q12h, plus MS IR 20 mg po q4h prn, taking on average 2 doses per day. She has been on this dose for about 2 weeks, & her pain is well controlled, but she has developed visual hallucinations which she finds quite frightening. She has significant renal impairment (Scr= 2.0 mg/dl) & this adverse effect may be due to accumulation of morphine metabolites. Her physician would like to switch her to long-acting oxycodone.

What information do I need to provide the pharmacist to make this conversion?

Case #3

Pharmacist will need the following information to make a good patient-specific recommendation:

1. Long-acting medication & dosing: MS Contin 45 mg po q12h = 90 mg/day
2. Breakthrough medication & dosing: MS IR 20 mg po q4h prn (2 doses per day) = 40 mg/day
3. Describe type of pain (to determine whether nociceptive, neuropathic or both)
4. How is patient rating pain on 1-10 scale?
5. Is patient more lethargic or sedated vs.. baseline?

Case #3

- * Pharmacist recommends converting the patient to:
 - * Oxycodone ER 40mg mg po q12h
 - * Oxycodone IR 10 mg po q4h prn breakthrough pain

Case #3: The Plot Thickens

Caregiver calls the nurse 3 days later & says the patient's pain is getting worse. Describes pain as shooting down her legs & down to her feet. Rating pain at 10/10 before breakthrough dose, pain 6/10 after breakthrough dose. Taking Oxycodone 10 mg every 2 hours, took 10 doses since yesterday.

What do you think?

Case #3

- * Is patient a candidate for methadone?
 - * History of atrial fibrillation or cardiac arrhythmias?
 - * Does she have a pacemaker?
 - * Risk vs. benefit!
- * Any other questions to ask patient?
 - * Current smoker?
 - * No
 - * Approximate weight or BMI information?
 - * 5 feet tall, weight 87 pounds

Case #3

Pharmacist recommendation:

- * Discontinue Oxycodone ER
- * Start methadone 5 mg po Q8h
 - * Recommend to complete methadone checks daily for the first 5-7 days of therapy to monitor for potential side effects.
 - * QT-prolongation is mentioned in the FDA labeling of this medication. Contact a pharmacist any time a new medication is added to patient's regimen to check for drug-interactions
- * Increase Oxycodone IR 20 mg po Q2h prn breakthrough pain

Adjuvants¹¹

- * Neuropathic pain
 - * Anticonvulsants: ie Gabapentin, Valproic acid
 - * Antidepressants: Desipramine, Elavil (TCA), Cymbalta (SNRI)
- * Pain that is localized/ neuropathic pain
 - * Creams (ie capsaicin)
 - * Lidoderm Patch
- * Bone pain
 - * Anti-inflammatory: NSAIDs, oral steroids
 - * Decrease osteoclast activity: Miacalcin NS, Bisphosphonates (IV)
- * Pain that is not responding to typical agents
 - * Ketamine

Neuropathic Pain- Use of Adjuvants¹⁸

- * Proposed effect by preventing injured neurons from excessive discharge
 - * Side effects: Sedation, hypotension, dry mouth
- * Older agents:
 - * Carbamazepine, phenytoin, valproic acid
- * Newer agents:
 - * Gabapentin, lamotrigine, levetiracetam, oxcarbazepine, zonisamide, pregabalin
 - * Gabapentin: Renal dosing

Neuropathic Pain- Use of Adjuvants¹⁸

TCA > SNRS > SSRI

- * Tricyclic antidepressants (TCA)
 - * Inhibition of serotonin and norepinephrine
 - * Common side effects: sedation, dry mouth, constipation, sweating, cognitive impairment
 - * Nortriptyline and Desipramine: good choice in elderly due to low side effects
- * Serotonin-norepinephrine reuptake inhibitors (SNRI)
 - * Venlafaxine and duloxetine
 - * Duloxetine with an FDA indication of depression and diabetic peripheral neuropathy

Neuropathic Pain- Use of Adjuvants¹⁸

- * Topical Agents
 - * Capsaicin
 - * OTC, extract of hot chili peppers
 - * Thought to deplete Substance P
 - * Lidoderm
 - * Blocks sodium channel responsible for spontaneous activity in nerve terminals of local tissue and nerve injury
 - * Works in both nociceptive and neuropathic pain

Bone Pain¹⁹

- * Corticosteroids
 - * Decrease inflammation
 - * Uses: increased cranial pressure, nerve compression, BONE PAIN, soft tissue damage
 - * Side effects: GI effects, increased appetite, hyperglycemia, insomnia
- * NSAIDs
 - * Decrease inflammation
 - * GI/ cardiac/ renal issues

Ketamine²⁰

- * Reserved for refractory pain when typical agents for both nociceptive and neuropathic pain have failed
 - * Co- analgesic, opioid sparing
- * MOA: NMDA receptor inhibitor, agonist at cholinergic/ opioid/ GABA A receptors, and inhibits serotonin/ norepinephrine reuptake and Na⁺ and K⁺ channels
- * Active metabolite: Norketamine
- * Pretreatment with benzodiazepines, or haloperidol may decrease psychotomimetic effects

You Made It! it's The END

- * Common barrier and stigmas associated with end of life pain treatment include the failure to identify pain as a priority, the lack of knowledge by healthcare professionals, legal ramifications, ethical debates, family and patient limitations.
 - * EDUCATE your team, your patient, yourself
- * Opioids are generally regarded as first line treatment for moderate to severe pain, with adjuvants to help with neuropathic or non- nociceptive pain.
- * Start low, titrate slowly and be aware of the side effects of all pharmacological interventions.

We are the Champions!⁷

“The last act of life is dying. Facing our death is an opportunity to bring closure to this journey. Our vision as people should be the humanization of death and its healing properties.”

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