

Acute and Post-operative pain

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Objectives

- Identify non-drug therapies for acute and post-operative pain
- Discuss appropriate over-the-counter therapy for a patient with acute or post-operative pain
- Identify measures to prevent acute or post-operative pain.
- Discuss prescription medications for the treatment of acute or post-operative pain.

Introduction

- the speaker
- pain
- types of pain
- treating acute pain
- treating post-operative pain
- medication safety

Pain

An unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage.

Pain

What ever the patient says it is.

Pain is personal and individual.

pain ≠ more opiate

Pain

- two broad types
 - nociceptive pain
 - visceral
 - somatic
 - pathologic or maladaptive pain
- acute
- sub-acute
- chronic
- assessing pain

Pain Assessment: PQRST

- P - Palliation/Provocation
 - What makes it better or worse?
- Q- Quality
 - How is the pain described?
- R- Radiates
 - Where is the pain and where does it spread?
- S- Severity
 - What is the intensity of pain?
- T- Temporal
 - Is the pain constant or intermittent?

Pain Scales

- visual analog scale
- faces pain scale (Wong-Baker)
- FLACC scale
- CRIES
 - infants
 - crying, requires O₂, increased VS, expression, sleepless
- others

Visual Analog Scales

Pain Assessment
Visual Analogue scale

0 1 2 3 4 5 6 7 8 9 10

No pain Moderate pain Worst possible pain

No Moderate pain Worst possible pain

No Worst

Faces Pain Scale

The Faces Pain Scale consists of 11 faces arranged in a row, numbered 0 to 10. Each face has a unique expression representing a level of pain. Below each face is a descriptive label:

- 0: No pain (neutral smile)
- 1: Mild, annoying pain (slight smile)
- 2: Nagging, uncomfortable, troublesome pain (neutral expression)
- 3: Distressing, miserable pain (slight frown)
- 4: Intense, dreadful, horrible pain (frown)
- 5: Worst possible, unbearable, excruciating pain (tears and a very distressed expression)

CATEGORY	SCORING		
	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested	Frequent to constant quivering chin, clenched jaw
Legs	Normal position or relaxed	Uneasy, restless, tense	Kicking or legs drawn up
Activity	Lying quietly, normal position, moves easily	Squirming, shifting back and forth, tense	Arched, rigid or jerking
Cry	No cry (awake or asleep)	Moans or whimpers; occasional complaint	Crying steadily, screams or sobs, frequent complaints
Consolability	Content, relaxed	Reassured by occasional touching, hugging or being talked to distractable	Difficult to console

Multidimensional pain scale

- 7-page document
- 48-54 questions
- pain
- affect on quality of life
- activities of daily living

Barriers to effective pain management

- knowledge deficit
- insufficient access to care
- lack of resources or commitment
- concerns regulatory or legal issues

Case 1

ML is a 40ish-year-old female who presents to her physician's office for evaluation of acute abdominal pain. She describes pain as sharp in quality, moderate intensity, and variable duration. The pain is random and not associated with any particular activity. She is occasionally pain-free.

Case 1

What questions would you like to ask ML?

Case 1

Which of the following most accurately describes ML's pain?

- A. Drug-seeking behavior
- B. Visceral pain
- C. Neuropathic pain
- D. Somatic pain

We have a diagnosis.

Now what?

Case 2

JL is a 40ish-year-old male who presents to your pharmacy for recommendations for analgesics to treat his sprained ankle. The pain is achy and throbbing.

Case 2
What questions would you like to ask JL?

Case 2
Which of the following most accurately describes ML's pain?

- A. Drug-seeking behavior
- B. Visceral pain
- C. Neuropathic pain
- D. Somatic pain

Pharmacologic options

- simple analgesics
 - NSAIDs, acetylsalicylic acid
 - acetaminophen
- opioid agonists
- opioid/simple analgesic combinations
- opioid/reuptake inhibitors
- opioid agonist/antagonist
- antidepressants (TCAs, SNRIs)
- antiepileptics
- alpha-2 agonists

Over-the-counter therapy

- ibuprofen
- other non-steroidal anti-inflammatory agents
- aspirin/acetaminophen/caffeine
- herbal products
- other products

NSAIDs, acetylsalicylic acid

- mechanism
- dosing
- adverse effects
- managing adverse effects

acetaminophen

- mechanism
- dosing
- adverse effects
- managing adverse effects

opiate analgesics

- hydrocodone combinations
 - acetaminophen
 - ibuprofen
- codeine combinations
- morphine
- hydromorphone
- fentanyl

Pharmacology of Opioids

- μ_1 : inhibit transmission of pain
- μ_2 : respiratory depression, euphoria, constipation, physical dependence
- δ : inhibit transmission of pain
- κ : inhibit transmission of pain

opiate analgesics

- mechanism
- dosing
- adverse effects
- managing adverse effects

Prescription Analgesics

- tramadol
 - opiate and serotonergic properties
 - initial dose 50mg BID
 - titrate weekly to a maximum of 400mg per day in divided doses
- tapentadol
 - opiate and norepinephrine reuptake properties
 - 100-250mg BID

Equianalgesic Table

Opioid	IM/IV (mg)	Oral (mg)
Morphine	10	30
Oxycodone	Not Available	20
Oxymorphone	1	10
Hydromorphone	1.5	7.5
Fentanyl	0.1	Not Available
Meperidine	75	300
Hydrocodone	Not Available	20
Codeine	120	200

Opiate analgesics

- tolerance
 - sedation
 - euphoria
 - itching
 - respiratory depression
- no tolerance
 - constipation
 - urinary retention
- single-entity or combination

Postoperative pain

- 75,000,000 surgeries in the US annually
- 80% of those patients have some postoperative pain
- 20% of patients with pain rate it as severe

Three-step approach

- pre-operative
 - multimodal pain management
- intra-operative
- post-operative
 - multimodal pain management

Preoperative hip or knee

- acetaminophen 1000mg PO
- celecoxib 200mg PO
- pregabalin 75mg PO
- oxycodone CR 20mg PO

Postoperative hip or knee

- acetaminophen 1000mg PO q8hr
- celecoxib 200mg PO q12hr
- pregabalin 75mg PO q12hr
- oxycodone CR 10mg PO q12hr

pregabalin (Lyrica)

- mechanism
- dosing
- adverse effects
- managing adverse effects

Case 2

- JL is a 40ish-year-old male who presents to your pharmacy for recommendations for analgesics to treat his sprained ankle.
- The other issue is that the patient fell on his left wrist and broke the scaphoid bone.
- This was surgically repaired leaving a 2-inch incision on the left wrist and a pain level of 5-6.
- What recommendations would you offer the orthopedic surgeon who trusts your opinion?

Case 3

- GM is a 38 YOM who fell off of a porch while under the influence of alcohol, injuring his cervical spine.
- Past medical history includes chronic low back pain, DM2, and irritable bowel syndrome.
- Home medications: methadone 20mg q8h, hydrocodone/APAP 10mg/325mg q4h prn breakthrough pain, metformin 1000mg BID, glyburide 10mg daily, hyoscamine 0.125mg SL prn.

More Case 3

- The patient is admitted to the Neuro-Intensive Care Unit of a local hospital under the care of a neurosurgeon. Patient is obtunded but breathing on his own.
- Admission orders: NPO, nalbuphine 10mg IV q4h prn pain, ondansetron 4mg IV q4h prn nausea, acetaminophen 650mg PR q4h prn pain/fever, famotidine 20mg IV q12h, hydralazine 10mg IV q4h prn hypertension, diazepam 5mg IV q6h prn spasms, diphenhydramine 25mg IV prn sleep

More Case 3

- Day 2 of admission: patient is awake enough to complain of pain.
- RN refers to the medication orders and gives the patient a single dose of nalbuphine.
- What happens next?

Definitions

- addiction: primary, chronic disease linked to genetic, psychosocial, and environmental factors; patients have impaired control over drug use, compulsive use, continued use despite harm, and craving (for more)
- tolerance: the need to increase the dose of opioid to achieve the same level of analgesia; similar pattern but different outcome compared to addiction

Definitions

- physical dependence: adaptation to a drug class noted by a specific withdrawal syndrome that can be produced by abrupt discontinuation or administration of an antagonist
- pseudoaddiction: pattern of drug-seeking behavior in patients who are receiving inadequate pain control; can be mistaken for addiction
- substance abuse: the use of any chemical for non-therapeutic purposes, or the use of medication for purposes other than those for which it is prescribed

Reducing Addictive Behavior

- Frequent clinic visits
- Low supply of narcotics
- Family support
- Psych/Social involvement
- Drug and alcohol abstinence program
- Contracts
- Urine testing
- Choose “ less abused” agents

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Acetaminophen

- January 2011 – FDA directive
- combination prescription products that contain acetaminophen are limited to no more than 325mg per tablet or capsule
- over-the-counter products exempt
- label changes
- January 2014 - implementation

Codeine in children

- codeine in children
 - metabolized by the enzyme CYP 2D6 in the liver
 - metabolized to morphine
 - selected individuals have the genetic ability to metabolize
- Life-threatening adverse events and death have occurred in certain children who received codeine after tonsillectomy and/or adenoidectomy for obstructive sleep apnea syndrome.

Codeine in children

- Counsel parents and caregivers on how to recognize the signs of morphine toxicity, and advise them to stop giving the child codeine and to seek medical attention immediately if their child is exhibiting these signs.
- Consider prescribing alternative analgesics for children undergoing tonsillectomy and/or adenoidectomy for obstructive sleep apnea syndrome.
- Hydrocodone as an alternative?

Analgesics in children

- ibuprofen
 - 5-10mg/kg/dose
- acetaminophen
 - 10-15mg/kg/dose
- other medications

Pain management in pregnancy

- acetaminophen
- NSAIDs
 - ibuprofen
 - others
- opiate analgesics and combinations

Pain management by proxy

- patient-controlled analgesia

Final, final words

- start with a low dose and titrate slowly to one of two things
 - _____
 - _____

Conclusions

- Pain has multiple possible causes.
- Non-drug therapies for pain are sometimes beneficial.
- Over-the-counter therapy is somewhat effective.
- Treatment with prescription analgesics is frequently necessary.
