Pain Management in an Adult Oncology Patient

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Learning Objectives
• Differentiate between addiction, dependence, and pseudo-addiction
• Describe the types of pain that an oncology patient may experience
• Design a therapeutic regimen to manage pain in an oncology patient
• Evaluate a given patient’s pain regimen and recommend adjuvant and supportive care options
• Explain the technician’s role in supporting the oncology patient
Addiction

- Primary, chronic neurobiological disease, with genetic, psychosocial, and environmental factors influencing its development and manifestations
- Characterized by impaired control, compulsive use, or continued use despite harm/craving


Dependence

- State of adaptation that is manifested by a drug class specific withdrawal syndrome produced by abrupt cessation, dose reduction, decreasing blood level, or administration of an antagonist


Pseudo-addiction

- Abnormal behavior developing as a direct consequence of inadequate pain management

Patient Case 1

- GW is a 68 year old female
- Recent diagnosis of ovarian cancer
- Pain constantly >7/10 on a 10 point scale
- GW has been receiving
  - Morphine ER 60 mg two times daily
  - Morphine IR 15 mg every six hours as needed

Patient Case 1

- GW has been complaining of increasing pain for the last 2 weeks and that it is not controlled anymore
- She has been calling your pharmacy every few days to find out when she can get her morphine refilled

What term best describes GW and her opioid behavior?
- a. Addiction
- b. Dependence
- c. Pseudo-addiction
Introduction

• An estimated 1,685,210 new cases of cancer will be diagnosed in 2016
• Pain presents in many types of cancers and in different forms
• In pancreatic cancer approximately 44% of patients will experience pain
  – Over 53,000 new cases of pancreatic cancer will be diagnosed in 2016


Need for Proper Management

• Duty to make patients comfortable
• Many patients don’t realize that pain management is part of cancer treatment
• We can make an impact on patient care through identification and pain management
• In Europe, 56-83% of patients with cancer related pain were undertreated
• Cancer pain can be relieved or lessened and patients should not be under treated


Proper Identification

• Frequent assessment is vital to proper management
• Descriptions of pain symptoms and locations are important
• Onset, site, presence of radiation, potential causes, duration, intensity, triggers, impact on daily living need to be taken into consideration
• Evaluate for signs of misuse

Pain and Distress

• Link between pain and psychological distress
• High psychological stress can alter perception making the pain seem more severe
• Pain control can influence psychological distress
• Pain control increases quality of life
• In oncology, survival is linked to symptom control


Common Pain Scales

• Visual Analog Scale
• Numeric Rating Scale
• Verbal Rating Scale

Goals of Pain Management

• “4 A’s”
  – Analgesia
  – Activities of daily living
  – Adverse events
  – Aberrant drug taking (addiction-related outcomes)
• Prevention of adverse events

**Pain Pathway**

1. Transduction
2. Transmission
3. Perception
4. Modulation


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**Transduction**

- First step leading to sensation
- Nociceptors distinguish between noxious and innocuous stimuli
- Stimuli release/stimulate release bradykinins, nerve growth factor, prostaglandins, histamine, interleukins, TNF-α, serotonin, and/or substance P
- Stimuli leads to an action potential along nerve fibers to spinal cord


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**Transmission**

- Afferent nociceptive pain fibers synapse in spinal cord
- Release of a variety of neurotransmitters
  - Glutamate, substance P, aspartate
- Signals reach brain through ascending pathways

Perception

• Pain becomes a conscious experience
• Cognitive and behavioral functions can modify pain
• Relaxation, distraction, meditation and mental imagery strongly influence pain perception
• Depression and anxiety can make pain worse

Modulation

• Endogenous opiate system
  – Endogenous opiates bind to opioid receptors and modulate transmission of pain
• CNS descending system for control of pain transmission that can inhibit pain transmission
  – Endogenous opioids, serotonin, norepinephrine, and GABA

Types of Pain

• Important to differentiate between types so that proper treatment may be administered
  – Somatic pain
  – Visceral pain
  – Neuropathic pain
Somatic Pain

- Most common type of cancer pain
- Described as aching, gnawing, throbbing, or cramping
- Prostaglandins and osteoclast-activating factors sensitize nociceptors
- Often caused by bone destruction

Visceral Pain

- Commonly in the cardiovascular, respiratory, gastrointestinal, and genitourinary systems
- Described as deep, squeezing, or colicky
- Mechanical or chemical activation of nociceptors
- Often the result of tumors pressing on nociceptors

Neuropathic Pain

- Described as burning, tingling, may radiate, numbness, shooting and electric-like
- Result of injury to a nerve resulting in spontaneous and ectopic firing
- Two features are occasionally displayed, allodynia and hyperalgesia
- Can be a result of tumor progression or chemotherapy
Allodynia and Hyperalgesia

- **Allodynia** - hypersensitivity to pain, detecting pain from sensations that are not normally painful
- **Hyperalgesia** - pain from a stimulus that is minimally painful


Patient Case 2

- DB is a 76 year old male
- Diagnosed with colon cancer early last year
- He has been treated with 5-FU, leucovorin, and oxaliplatin
- Upon speaking to DB he tells you he is in pain and his current medications have not been working
- His current pain regimen is
  - Fentanyl patch 50 mcg/hour 1 patch every 72 hours
  - Morphine IR 15-30 mg every 4-6 hours as needed

DB describes his pain as a burning sensation that radiates around his left leg and numbness in his finger tips.

What type of pain is DB experiencing?
- a. Somatic pain
- b. Visceral pain
- c. Neuropathic pain
DB has also been experiencing extreme amounts of pain when his wife lightly touches his hand.

What term adequately describes this scenario?
- Hyperalgesia
- Allodynia

Opioid Tolerance Definition
- Patients who are receiving chronic opioid therapy with a daily dose of 60 mg of morphine or an equivalent dose

Pharmacologic Management
- Different types of pain require different treatments
- Preferred route of administration is oral
- A multimodal approach to pain should be taken
Neuropathic Pain

• Can be due to nerve compression, inflammation or chemotherapy
• Preferred agent for nerve compression or inflammation is dexamethasone
  – Lower mineralocorticoid effects
• Antidepressants and anticonvulsants can be used to manage pain not related to compression or inflammation


Dexamethasone for Nerve Compression/Inflammation

• Longer duration of action and less mineralocorticoid effects
• Should be dosed in the morning to avoid insomnia
• Long term use should be evaluated on a patient to patient basis and accounting for progression of cancer


Antidepressants for Neuropathic Pain

• Tricyclics and SNRIs are the preferred antidepressants
  – Lower doses than for treatment of depression
  – Amitriptyline, imipramine, desipramine, nortriptyline, doses started low and increased every 3 to 5 days
• Duloxetine and venlafaxine can be increased daily
• Monitoring for sedation, dryness of mouth and urinary hesitancy can occur

Anticonvulsants for Neuropathic Pain

- Gabapentin and pregabalin are the preferred anticonvulsants
- Doses should be started low and slowly titrated up
- Dose adjust gabapentin for renal function
- Dosed 2-3 times a day

NSAIDs and Acetaminophen

- Regardless of pain score, many patients can derive benefit from NSAIDs and/or acetaminophen
- Both can help supplement opioids and can potentially lower the amount of opioid needed
- Patients with somatic pain may benefit due to bone and inflammation involvement
- NSAIDs should be used with caution due to renal and GI toxicities
- Prior to initiation of acetaminophen evaluate for presence of liver metastasis

Opioids

- Opioids are preferred treatment
- Often used for somatic, viscera, and neuropathic pain
- Morphine, hydromorphone, fentanyl, and oxycodone most commonly used
- Morphine and hydromorphone should be used with caution in renal insufficiency
- Initially patients should be started on short acting and transitioned to long acting if chronic therapy is needed
- Smallest effective dose should be used
Patient Case 3

- MP is a 58 year old female
- Diagnosed 3 months ago with breast cancer
- Recent imaging shows metastasis to the bone
- MP has recently began commenting on the amount of pain she is in, rated at 8 out of 10
  - Sharp, shooting, electric-like pain
  - Deep squeezing pain
- All labs are within normal limits

MP is not currently on any pain medication.

What medications would be appropriate for the management of MP's pain?
- a. Ibuprofen
- b. Morphine
- c. Gabapentin
- d. All of the above

Patient Case 4

- CY is a 66 year old male
- He was diagnosed with esophageal cancer 5 months ago
- He has been on chronic pain therapy for 4 months
- His current pain medications are
  - Oxycodone ER 30 mg two times a day
  - Oxycodone IR 15 mg every 4-6 hours as needed
CY has been complaining of increasing pain for the last few days. Recent imaging shows a large mass pressing on a spinal nerve.

What medication would you recommend to help with his pain?

a. Fentanyl
b. Ibuprofen
c. Acetaminophen
d. Dexamethasone

Management of Opioid Adverse Effects

- Constipation should be anticipated
  - Stimulant ± stool softener max of 8 tabs a day
  - Polyethylene glycol 17gm two times a day
  - Maintain fluid intake, and exercise if possible
- If constipation develops assess for cause
  - Titrate laxatives as needed
  - Consider change in pain regimen to decrease opioid use
  - Assess for bowel obstruction

Management of Opioid Adverse Effects

- If constipation persists
  - Reassess for cause and severity
  - Consider adding another agent (bisacodyl, magnesium hydroxide, etc)
  - Rectal suppositories/enemas are contraindicated in neutropenic and thrombocytopenic patients
- If nausea and pruritus develop consider switching to another opioid

Management of Opioid Adverse Effects

• Respiratory depression
  – Consider naloxone injection
• Sedation
  – Assess for other causes
  – Consider lower dose given more frequently
  – Consider opioid rotation
  – Consider addition of nonopioid analgesic to decrease opioid use


Which of the following side effects should be anticipated, and managed prophylactically?

a. Sedation
b. Respiratory depression
c. Constipation
d. Pruritus

Pharmacy Technicians Role

• Med history
• Pain descriptions
• Obtaining pain impact on quality of life
• Tracking refill history
• Watching for signs of withdrawal and overdose
Questions?