Objectives:

- Discuss a case involving under-treated cancer pain
- Discuss barriers and potential solutions to cancer pain management
- Review WHO guidelines for cancer related pain
- Review therapies for palliative pain management to include interventional pain management therapies
WHO Definition of Palliative Care

Palliative care is an approach that improves the quality of life of patients and their families... through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual...

https://www.who.int/cancer/palliative/
Case: Presentation and History

• 21-year-old male with stage 4 cancer was admitted through the Emergency Department with poorly controlled cancer related pain

• PMHx: Cancer with metastasis

• Pertinent Hx/Prior Treatment:
• Outpatient pain specialist, pain well managed on:
  • Fentanyl 100mcg/hr topical patch x 72 hrs
  • Morphine Sulfate Immediate Release (MSIR) 15mg po q4-6 hrs prn breakthrough pain
Case: History

• CC:
  • Insidious onset of increasing abdominal pain and new onset low back pain with bilateral radiculopathy

• Pain prior to exacerbation: 1-2/10

• Pain score in ED: 6/10

• Vital signs stable, patient A & O x 3
Case: Course

• Upon admission, Fentanyl patch was d/c’d

• Inpatient orders: Morphine Sulfate 2-4mg IV q 4-6hrs prn pain

• No communication with outpatient pain specialist for medication and compliance history
Case: Course

• 24 hours post-admission, patient c/o intractable pain, rated 10/10

• Additionally, patient was experiencing chills, nausea and diarrhea

• Order placed for pain specialist consult
Case: Physical Exam

• VS: BP 180/90, Pulse 112, Respirations 20, Temp, oral 99.8F, O2 Sats 98%

• WDWN male in acute distress, pale, diaphoretic and tearful

• Remainder of exam difficult secondary to apprehension, guarding, with significant discomfort noted with gentle palpation of the lumbar spine
Case: Diagnostic Testing

• CT of the abdomen/pelvis & MRI of lumbar spine:
  • New areas of metastasis, including spine and liver
Case: Subsequent Treatment

- IV Morphine use was calculated and converted to appropriate Fentanyl patch strength

- Patient Controlled Analgesia (PCA) was initiated for breakthrough pain and as a bridge until Fentanyl patch reached therapeutic levels
Case: Subsequent Treatment

• Adjunct therapies initiated:
  • IV Toradol
  • PO gabapentin
  • Topical Lidoderm patches

• Order placed for hospice consult
Case: Subsequent Treatment

- Approximately 24 hours after renewal of Fentanyl patch and initiation of PCA, pain score was reduced to 6/10

- PCA was titrated accordingly and at 48hrs, the patient reported pain score of 2/10

- Patient was A & O, with stable vital signs and resolution of withdrawal symptoms
Case: Final Disposition

- Pain adequately controlled and no noted medication side effects
- Conversion from PCA to oral breakthrough pain medication
- Transfer shortly thereafter to outpatient hospice
Discussion

• Pain Crisis:
  • Pain that is intractable, uncontrolled, severe and causes significant distress to patient

• Significant numbers of patients report severe and debilitating cancer-related pain:
  • 70% of patients with cancer will at some point experience significant pain
  • 32% report of patients with cancer report poorly controlled pain during and after cancer treatment

Haumann J etal, 2017
Cancer Pain

- Pain prevalence in patients with cancer:
  - 39% of patients after curative treatment
  - 55% during anticancer treatment
  - 66% with advanced, metastatic disease

- Cancer pain severely impacts quality of life
  - Can result in multiple psychosocial issues

Discussion

• Cancer pain treatment is a complex balancing act

• Confounding concerns for clinicians:
  • Opioid addiction
  • Opioid related deaths
  • Diversion

(Haumann J et al, 2017)
AAPA Guidelines for Ethical Conduct for the PA Profession

- States that Physician Assistants (PAs) must provide relief of physical suffering to patients who are terminally ill

- Guidelines support the concept that palliative pain management is not just essential at the end of life, but through the progression of the disease

- There is a need to identify obstacles to pain control in this population

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Clinician Training and Experience

• Though recognition of the need for pain control measures has increased, many patients with cancer still experience undertreated pain.

• Current estimates show that <20% of clinicians licensed to prescribe have had adequate training in the appropriate use of opioids.

• Survey of PA programs in the US showed that a majority provided a maximum of ≤ two hours of content related to treatment of patients with cancer, to include palliative pain management.

Clinician Training and Experience

• Lack of provider knowledge translates across professions
  • Physician
  • Physician Assistant
  • Nursing

• Obvious benefit to patients when clinicians have adequate exposure to pain curriculum in training as well as through participation in CME activities
Potential Solutions

• Need for advances in pain education across all health-related programs

• World Health Organization (WHO) adult cancer pain ladder model:
  • Has been in place for many years
  • Highly effective when utilized appropriately
  • Many clinicians are unacquainted with it

• The ladder model, three step approach is effective in controlling cancer-related pain 80-90% of the time

WHO Adult Cancer Pain Ladder Model

**WHO's Pain Relief Ladder**

1. **Nonopioid for mild pain**
   
   +/- Adjuvant

2. **Opioid for mild-to-moderate pain**
   
   +/- Nonopioid
   
   +/- Adjuvant

3. **Opioid for moderate-to-severe pain**
   
   +/- Nonopioid
   
   +/- Adjuvant

**Freedom from cancer pain**

For more information, visit: https://www.who.int/cancer/palliative/painladder/en/
When cancer pain occurs, there should be prompt administration of drugs for pain relief

Non-opioids (aspirin, ibuprofen, Tylenol, Toradol)

Pain persists or increases

Mild opioids for mild to moderate pain
• +/- non-opioid
• +/- adjuvant

Pain persists or increases

Stronger opioids for moderate to severe pain
• +/- non-opioid
• +/- adjuvant

https://www.who.int/cancer/palliative/painladder/en/
WHO Adult Cancer Pain Ladder Model

• Medications should be given “by the clock” (q3-4hrs) vs prn pain

• Unfortunately, 20% of cancer-related pain is not relieved solely through use of the WHO pain ladder

• Interventional pain management, palliative radiation or surgery may be appropriate to provide further relief

Institutional Guidelines

• Joint Commission on Accreditation of Health Care Organizations (JCAHO) study on inpatient undertreatment of cancer pain noted multiple barriers:
  • Lack of continuity of care
  • Higher priority given to non-malignant pain
  • Lack of involvement of pain specialists early in patient’s course
Solutions

• JCAHO Guidelines for Pain Management, updated 2018

• Involvement of pain specialists:
  • Advanced training in pharmacologic management of pain
  • Ability to perform interventional procedures for pain
  Consult early!

• Extensive evidence-based literature supporting use of such interventional techniques as adjunct therapy for cancer-related pain

(Carlson CL, 2016)  (Bhatnagar S et al, 2015)
Comfort Level of Nursing Staff

- Nurses play an important role in provision of pain control

- Barriers related to administration of adequate pain medication is directly proportional to:
  - Level of knowledge
  - Relationship with pain specialist or other prescribers
  - Their own attitudes regarding pain management
Solutions

- Encouragement to stay abreast of current evidence-based best practices in pain management
  - CME activities in treating cancer-related pain

- Clinician and/or pain specialist role:
  - Foster trusting relationship
  - Provide education in palliative pain management
Societal Bias

- American Cancer Society Study (Stein KD, 2016):
  - Inequalities occur in cancer pain management in inpatient/outpatient settings
  - Occur most at the clinician level
  - Differences related to:
    - Socioeconomic status
    - Ethnicity
    - Level of education
    - Type of cancer being treated

Solutions

• Instruction in cultural competence in medical curriculum

• Recognition of personal bias

• Institutional monitoring
Patient Reluctance or Fear

- Patients may believe that cancer pain is inevitable and out of their control
- Personal belief systems can affect decisions
- Reluctance to use opioids for fear of addiction
- Family reluctance (influence)
- Difficulty in communicating pain needs to their clinician
Potential Solutions

• Education and counseling of patient AND family

• Empowering patient by promoting/encouraging active involvement in their own care:
  • Setting realistic goals
  • Knowledge of risks and benefits
  • Knowing when to ask for help
Etiology of Cancer Pain

- **Etiology of pain dictates treatment**
- Nociceptive
- Neuropathic
- Inflammatory
Types of Pain

Nociceptive:
- Activation of peripheral pain receptors, somatic or visceral
- Stretching of tissue or bony pain

Neuropathic:
- Results from damage to, pressure on or dysfunction of nerves, the spinal cord or brain
- Due to chemotherapy effect or direct tumor infiltration

Inflammatory:
- Release of chemical modulators in response to tissue damage
Nociceptive/Inflammatory Pain

- NSAIDs: Ibuprofen, Toradol
- Tylenol
- Corticosteroids
- PO/sublingual/PR/topical opioids
- Parenteral opioid medications
- Physical therapy (PT)
- Heat/Ice
Neuropathic Pain

- Anticonvulsants: gabapentin, pregabalin
- Antidepressants: amitriptyline, duloxetine
- Weaker opiate/SSRI action: Tramadol, Nucynta
- Lidoderm patch/compounded creams
- Spinal cord stimulator
- Epidural steroid injections (ESI)
- Nerve blocks
Interventional Pain Management Therapies

- Peripheral Nerve Blocks
- Sympathetic Nerve Blocks/Neurolysis
  - Stellate Ganglion
  - Celiac Plexus
  - Lumbar sympathetic
  - Superior hypogastric
  - Ganglion of Impar

- Epidural Steroid injection
- Medial Branch Block
- Intrathecal Pump Implant
- Spinal Cord Stimulator Implant
- Patient Controlled Analgesia
Peripheral Nerve Block

- **Indications:**
  - Cancer-related pain in specific nerve distribution
    - Trigeminal
    - Sphenopalatine
    - Intercostal nerves
- **Potential complications:**
  - Infection
  - Sensory/motor deficits
Sympathetic Blocks and Neurolysis

• Targets visceral afferent pain fibers
• Prognostic block prior to neurolysis
• Bupivacaine typically injected and patient monitored for therapeutic response
• Neurolysis involves disrupting the nerve plexus with a neurolytic agent (ethanol, phenol), surgery, cryotherapy or radiofrequency ablation
• Improves pain (shown to decrease opioid consumption)
Neurolytic Block

Indications

• Typically performed for cancer patients with advanced disease

• The following should be considered:
  • Optimal for patients with a limited lifespan of three to six months
  • Is there a favorable risk to benefit ratio?
  • Did the patient have a good analgesic response and acceptable side effects with prognostic blocks?
Stellate Ganglion Block

- **Indications:**
  - Cancer-related pain in the upper extremities and chest, head and neck, breast, thorax
  - Typically at C6-C7

- **Potential complications:**
  - Infection
  - Horner’s syndrome (ptosis, miosis, conjunctival injection, anhidrosis)
Celiac Plexus Block

• **Indications:**
  - Cancer-related pain in the upper abdomen:
    - Pancreas, gastric, hepatic, biliary tree
    - T12-L2

• **Potential complications:**
  - Diarrhea
  - Hypotension
  - Leg weakness/paraplegia
  - Sensory deficits
Lumbar Sympathetic Block

• **Indications:**
  • Cancer-related pain in the lower abdomen/lower extremities
    • L1-L4

• **Potential complications:**
  • Infection
  • Intravascular injection
  • Spinal injection
  • Hypotension
Superior Hypogastric Plexus Block

- **Indications:**
  - Cancer-related pain in the entire pelvis with exception of ovaries:
    - Bladder, testicles, cervix, vagina, uterus
    - L5-sacrum

- **Potential complications:**
  - Infection
  - Damage to vasculature
  - Spinal nerve damage
  - Retroperitoneal bleeding (plexus lies in the retroperitoneal space)
Ganglion of Impar Block

• Indications:
  • Perineal, rectal pain or coccydynia secondary to cancer
  • Anterior to coccyx

• Potential complications:
  • Infection
  • Impaired b/b, motor/sensory function
  • Rectal perforation
  • Neuralgia

• https://accessanesthesiology.mhmedical.com
Epidural Steroid Injection and Medial Branch Block

• **Epidural Steroid injection:**
  • Cervical
  • Thoracic
  • Lumbar

• Injection of steroid in the epidural space (not neurolytic)
• Reduces inflammation of nerve roots and relieves neuropathic symptoms (radicular pain)
• Length of effect varies

• **Medial Branch Block:**
  • Neurolytic block of medial branch of primary dorsal ramus
  • Blocks intractable pain due to malignant vertebral compression fractures (axial pain)
Intrathecal Pump Implant

Surgically implanted device, typically in the abdomen
Deliverance of pain medication through catheter into the intrathecal space
Greater effect at lower opioid dosage than po or transdermal pain medications
  • Can minimize side effects
Refills done in office via port in implant
Medication concentration is patient specific and is titrated externally by clinician

Potential complications:
  • Infection
  • Titration issues
  • Lack of patient compliance with pump refills
Spinal Cord Stimulator

- Neuromodulation (electrical stimulation of the nerves)
- Helps with neuropathic pain in the extremities
- Electrodes introduced near the spinal cord in the epidural space
- Trial prior to implantation

- **Potential complications:**
  - Infection
  - Battery may not be MRI compatible (older units)
  - Unsuitable for debilitated patients near end of life
Patient Controlled Analgesia (PCA)

• Administers a specific dosage of opioid pain medication at set rate and/or intervals

• Allows you to accurately see patient requirements
  • Monitor patient attempts to utilize the system

• Can help get severe, debilitating pain under control more quickly
PCA

• Other Benefits:
  • Patient psychologically feels that they have some control over their pain
  • Patients don’t use while sleeping, so typically less opioid use overall

• Risks:
  • Family members pushing button for the patient (ie: when pt is asleep)
  • Overdose risk if patient is not properly monitored and titrated
Patient Controlled Analgesia

- Order continuous pulse oximetry
- Order for naloxone
- Discuss with RN
- With new PCA, patient should be seen within 12hrs
- Titrate PCA as needed
- Once stable, patient should be monitored every 12-24hrs
- Wean as tolerable, PCA is for short-term use only
Cancer Pain Management Pearls
• Make the diagnosis....is the patient experiencing a pain crisis?
  • Differentiate reversible vs intractable causes of pain
• Select therapies based on etiology of pain
• Utilize adjunct therapies
• Consult with experts in pain management quickly to avoid continued suffering
• Communicate with patient and family
• **Consider other needs of patient:**
  • Psychological
  • Spiritual
  • Social (pets, work)
Summary

- As PA clinicians, we have a responsibility to alleviate suffering
- Cancer pain management requires a multi-disciplinary approach
- Remember early intervention and teamwork is key

“We cannot change the outcome, but we can affect the journey.”

ANN RICHARDSON
Thank You
References


References


• Moryl N, Coyle N, Foley KM. Managing an acute pain crisis in a patient with advanced cancer: "this is as much of a crisis as a code". *Jama*. 2008;299(12):1457-1467.