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Nursing care of the post-surgical patient
twin cities health professionals education consortium

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Post surgical pain management

Objectives:
At the completion of this course, the learner will be able to:
• Employ effective interventions to manage pain in the post-surgical patient
• Describe barrier to effective pain management for the post-surgical patient
• Identify adjuvant therapies for optimal pain management for the post-surgical patient

Pain is:
• Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage (IASP Taxonomy, 2016).
• Pain is not:
  • One of the primary senses: see, taste, touch, smell
• Pain is:
  • An emotional state such as love, anger, sorrow

OBJECTIVE SUBJECTIVE

Goals of effective pain management
• A tolerable level of discomfort according to what the patient feels is comfortable
• Nursing interventions to minimize physiological effects of pain
• Enhance quality of life
• Around the clock management
  • Utilize pre-emptive analgesia
  • Oral medication implemented prior to blocks, IV’s, sedation effects exhausted

World Health Organization (WHO)
• Pain management is a Fundamental Human Right
• Categories of pain
  • Acute Pain
  • Chronic Pain
  • Cancer Pain
• “It is within the capacity of all developed and many developing countries to significantly improve the treatment of pain” (Brennan, Carr, and Cousins, 2007).
### Case study

- Mary is s/p TAH for malignancy 2 days ago. You meet Mary @ 1530. Her husband Paul is at her bedside. She has a PCA but is using very little medication. She rates her pain currently at 4/10. She states that she’s “fine”. You encourage her to use her PCA bolus doses and for her to cough and deep breath (CDB). You come back an hour later and ask if she’s done any CDB and she states that she has not. You note in her EHR that previous shifts have been charting that Mary has not been doing her CDB for the past 48 hours. You note on physical exam temp of 102.1, bilateral fine crackles in the bases, and she is grimacing with movement. You again explain the importance of CDB and the use of her PCA boluses. The husband state “that much pain medication can’t be good for a person, can it?”

### Barriers to effective pain management (con’t)

- **Demographics**
  - Age: esp Pediatric & Elderly
  - Many Minority Cultures
  - Gender: esp Females
  - Religious beliefs
- **Fear**
  - Addiction
  - Intolerance
  - Fatalism
  - Previous experiences

### Consequences of poor pain management (con’t)

- **Physiological**
  - Increased HR
  - Increased Systemic Vascular Resistance
  - Increased circulating catecholamines
  - Reduced mobility
  - Loss of muscle strength
  - Sleep disturbances
  - Increased risk for disease
  - Increased risk for drug dependence

### Pain assessment

- **Considerations**
  - Patient self assessment/goal
  - Intensity
  - Location
  - Quality
  - Onset, duration, pattern
  - Alleviating factors
  - Exacerbating factors
  - Accompanying symptoms

### Barriers to effective pain management (con’t)

- **Health Care Professionals**
  - Inadequate knowledge
  - Poor assessment
  - Bias
- **Health Care System**
  - Low priority
  - Regulations surrounding controlled substances
  - Access/reimbursement to alternative treatments

### Consequences of poor pain management

- **Social and Economic**
  - Work absenteeism
  - Lost wages
  - Poor productivity
  - Poor quality of life
  - Strained personal relationships
Pain assessment (con't)

• What if my patient is non-verbal?
  • Increased VS: HR, RR, B/P
  • Decreased lung volume
  • Reduced blood flow – cap refill
  • Elevated blood sugar
  • Increased gastric secretions and decreased motility
  • Vomiting
  • Increased Na+/H2O retention
  • Dilated pupils

Initial Assessment

• On admission
  • Q 4: PCA, epidural, continuous patch
  • Q 8: routine
  • Changes in pain
  • Change in activity level

Pain assessment (con't)

• Initial Assessment

Re-Assessment

• Post intervention: how long?
  • Effectiveness
  • Goal met
  • Additional interventions
  • Consider changes in plan

Physiologic response

• Endocrine
  • Respiratory
  • Cardiovascular
  • Gastrointestinal
  • Genitourinary
  • Immunological
  • Coagulopathy

Mechanism of pain

• Pathways
  • Transduction
  • Transmission
  • Perception
  • Modulation

transduction
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transmission  

perception

Example of noxious stimuli that damage cells and stimulate nociceptors, initiating the sensation of pain.

modulation

Pain pathway

pathway

Pain pathway
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Classifications in depth

- Acute vs. Chronic
- Nociceptive vs. Neuropathic
- Somatic, Visceral, Central, Peripheral

Acute vs chronic

- Follow a specific event/injury
- Temporal pattern of onset
- Subjective & Objective signs present

- Persists from months to years
- Autonomic Nervous System Adaptation
- Effects Lifestyle, Personality, Functional ability

Pain Classification

Acute Pain

Nociceptive

Somatic Visceral

Chronic Pain

Neuropathic

Central Peripheral

Somatic

- Musculoskeletal
  - Bone
  - Joint
  - Muscle
  - Skin
  - Connective tissue

Visceral

- Organ pain
  - Kidney (ex: calculi)
  - Liver (ex: cirrhosis)
  - Pancreatic (ex: acute pancreatitis)
  - GI (ex: malignancy, ulcerations)
  - GYN (ex: uterus)

Peripheral

- Nerves (ex: Diabetic Neuropathy)
- Spinal cord (ex: nerve root compression)
central

- Dys-regulation of Autonomic Nervous System
- Phantom pain
- Complex Regional Pain Syndrome (CRPS)

Pain Cycle

- Muscle Tension
- Stress
- Depression
- Reduced Activity
- Guarding
- Deconditioning
- Fatigue

Hypnotic

- Treatments

- Opioid
- Non-Opioid Analgesics
  - APAP
  - NSAIDS
- Adjuvant Therapies
- Non-pharmacologic

Opioids

- Routes of Administration
  - Oral
  - IV
  - PCA
- Mechanism of Action
  - Rapid acting
  - Extended release

Case #2

MRS Smith 52 yo female
metastatic lung cancer admitted with hemoptysis and SOB.
10 mg Oxycodone PO ordered every 4 hours prn for pain and IV Ativan ordered every 6 hours prn for anxiety.
Patient places her call light on every 3 1/2 hours to ask for pain medication and every 5 1/2 hours to ask for Ativan.
Asks for medications by name and refuses to give a pain scale rating until you provide her with pain medication.

Nursing considerations

- Opioid Naive vs. Opioid Tolerant
- Allergy vs. Intolerance
- Co-Morbidities
- Cumulative dose effects
- Assess for potential interactions
- Individualize the Pain Plan – Include the patient!
- Beware of duplicative therapies/range orders!!
addiction
• Addiction
• Pseudo-Addiction
• Tolerance
• Physical Dependence

Opioid adverse effects
• Constipation
• Nausea/vomiting
• Sedation
• Mental status change
• Respiratory depression
• Pruritus
• Urinary retention/bladder spasms
• Dry mouth

Respiratory considerations
• Respiratory Assessment in the presence of Opioids
• RASS
• PCA’s
• Reversal Agents
• Levels of Sedation

Case #3
• Mrs Gray: 68-year-old female
• Six hours post surgery
• Receiving acetaminophen PO and IV PCA with a bolus dose of 0.4 mg hydromorphone with lockout of 10 minutes.
• It is currently 2:00 a.m. and she is snoring.

CASE #3 CONTINUED:
RECOMMENDATIONS FOR MRS. GRAY
• Make sure family is not pushing button
• Decrease the dose to 0.2 mg bolus instead of 0.4.
• Increase monitoring
• Notify prescriber for pain of >4 and inability to increase dose

Non-opioid analgesics
• APAP
• NSAIDS
• Adjuvant Therapies
• Non-Pharmacological
APAP combinations

• No anti-inflammatory or anti-platelet effect
• Does not damage gastric mucosa
• Acts peripherally
• Has a ceiling effect of 4 gm/day
• Liver toxicity with doses >4gm/day
• Use cautiously in alcoholics or patients with liver disease
• IV administration now available

nsaid

• COX Inhibitors
• Indicated for pain r/t inflammation
• Mild to Moderate
• Anti-inflammatory, antipyretic, analgesic effects
• DO NOT use for spinal fusion patient

[Debois, et. al, 1998]

Adjuvant therapies

• Anticonvulsants
• Antihistamines
• Benzodiazepines
• Tricyclic antidepressants (TCA)
• Reversal Agent

[Brogden and Goa, 1991]

Non-pharmacologic options

• Acupuncture
• Massage
• Heat/Cold
• Aromatherapy
• Healing touch
• TENS
• Guided Imagery
• Relaxation
• Music
• Distraction

[Overview, Kucukoglu, and Tse, 2015]

When to use what

WHO Three-Step Analgesic Ladder

Case # 4 72 y/o female, osteoarthritis, s/p RTKA

• Surgical hx: LTKA, multilevel spin fusion and decompression
• PMH
  • Depression with anxiety components
  • Hypertension
  • Hyperlipidemia
  • Recovered alcoholic x 12 years
  • Hypothyroidism
  • Tobacco abuse – 1/2-1 PPD
  • Chronic pain left knee and back – neuropathic; possible CRPS developing

• Allergies
  • Morphine & Codeine – hives
• Medication list
  • Cymbalta 30 mg BID
  • Tiagabine 4 mg 1-2 q12 hr
  • Simvastatin 20 mg qday
  • Lisinopril 20 mg daily
  • Buspar 10 mg TID
  • Levothyroxine 75 mcg daily
  • Gabapentin 200 mg qhs
  • Vicodin 4-6 per day as needed for pain, (pt reports recently had increased dose to 8/day, 2 weeks before surgery for increased pain.)
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**case #4**

New Medications
- Ondansetron 4mg IV q6hrs PRN Reglan 10mg PO/IV q6hrs PRN ordered but has not been given
- Lorazepam for anxiety – one dose given
- Celebrex 100 mg daily – started post op for R. knee pain
- Percocet 5/500 q6hrs PRN
- Hydromorphone 0.2-0.5 mg IV q15minutes prn to control pain; max of 3 doses in 2 hours, then 0.5-1.0 mg IV q3h prn pain

**Case # 4**

**Assessment**
- Anxiety about addiction r/t PMH
- Belief that Vicodin is “milder” and cannot cause addiction
- Nausea unrelieved by antiemetic
- Pain rating 9/10, sharp, achy and throbbing
  - 0.2 mg followed by 0.4mg hydromorphone brought pain down to a 7
- Goal 4/10
- Experiencing burning and intermittent electric volt like pain in left leg/knee - 8/10
- Pain worsens when she worries

**Case # 4 Recommended management**
- Reassure patient regarding use of opioids and lorazepam.
- Educate on addiction vs tolerance
- Get pain under control: hydromorphone 0.4 mg IV q15 min x 3 doses
- Get nausea under control: start transderm scop patch; decrease metoclopramide dose to 5 mg q6h prn/PO due to decreased renal function
- Baseline pain control: increase gabapentin to 100 mg bid and 200 mg qhs; keep celecoxib at 100 mg qday due to decreased renal function. Schedule APAP q6 hrs
- Breakthrough pain: D/C Percocet and change to PO hydromorphone or oxycodone for BTP – reassess after give antianemics chance to work
- Integrative therapies: aromatherapy, acupuncture, healing touch and/or Reiki

**References:**

**questions**