

Project: Ghana Emergency Medicine Collaborative

Document Title: Complications of Pain Management

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Complications of Pain Management

Ghana Emergency Nurses Collaborative

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February 18, 2013

Critical Outcome

- Emergency nurse assesses, identifies, and manages acute and chronic pain within the emergency setting

Specific Outcomes

- Define the types of pain and complications of pain management
- Delineate pain physiology and mechanisms of addressing pain with medications
- Define the general assessment of the patient in pain
- Delineate the nursing process and role in the management of the patient with acute and chronic pain
- Apply the nursing process when analyzing a case scenario/patient simulation
- Predict differential diagnosis when presented with specific information regarding the history of a patient
- List and know the common drugs used in the emergency department to manage the painful conditions and conduct procedural sedation
- Consider age-specific factors
- Discuss medico-legal aspects of care of patients with pain related to emergencies

Complications of Pain

- Physiologic Effects
 - Respiratory System
 - Cardiovascular System
 - Neuroendocrine
 - Mobility

Physiological Effects of Pain:

Respiratory

- *Respiratory Effects:*
 - Decreased vital capacity
 - Decreased functional residual capacity
 - Decreased ability to cough
 - Decreased ability to breath deeply

Resulting in:

- Retention of secretions
- Atelectasis
- Pneumonia

Respiratory Depression Risk Factors

- Basal infusions
- Current CNS depressant use
- Older age
- Medical comorbidities
 - Renal or liver dysfunction
 - Cardiac failure
 - Pulmonary disease

Respiratory Depression Management

- *Frequently drowsy, arousable, drifts off to sleep during conversation*
 - Discontinue other sedatives
 - Hold basal rate
 - Decrease opioid demand dose by > 50%

Respiratory Depression Management

- *Somnolent, minimal or no response to stimuli*
 - Discontinue other sedatives
 - Hold opioids
 - Diluted Naloxone 0.04mg IV q 2 min PRN
 - (0.4mg amp in 10 mL NS = 0.04 mg/mL)
 - If vitals stable and consistent with goals, consider holding opioids with close monitoring and not administering Naloxone

Respiratory Depression Management Summary

- Hold/lower opioids
- Avoid Naloxone when possible
 - If necessary use diluted dosing

Physiological Effects of Pain

- *Cardiovascular Effects:*
 - Increased sympathetic output
 - Increased tachycardia
 - Increased hypertension
 - Increased catecholamine blood levels
 - Increased myocardial oxygen demand

Resulting in:

- Increased risk of ischemia

Physiological Effects of Pain

- *Neuroendocrine effects:*
 - Increased secretion of catecholamines & catabolic hormones
 - Increased sodium & water retention

Physiological Effects of Pain

- *Effects on mobilization:*
 - Delayed
 - Risk of deep vein thrombosis
 - If an inpatient -> could increase length of hospital stay

Naloxone (Narcan)

- *Uses:*
 - Used for respiratory depressed induced by opioids
- *Mechanism of Action:*
 - Competes with opioids at opiate receptor sites
- *Side Effects:*
 - Patients with drug dependence may experience cramping, hypertension, anxiety, vomiting, signs of withdrawal
- *Comments/Warnings:*
 - Monitor vital signs and level of consciousness every 3-5 minutes
 - Administer only with resuscitative equipment nearby

Naloxone Risks

- Acute opioid withdrawal
 - Vomiting -> aspiration pneumonia
 - Acute pain crisis -> need more opioid
- Catecholamine surge
 - Cardiac arrhythmias
 - Pulmonary edema

Pain Relief in Special Populations

- Pain relief in patients with:
 - Renal failure
 - Liver failure
 - Elderly

Renal Failure

Which opioid should I use in renal failure?

- Majority of opioids are renally cleared
- Recommendations based on presence of active metabolites

Renal Failure

- Morphine, Codeine
 - Potent metabolites cleared renally
 - NOT recommended in renal failure
- Hydromorphone, Oxycodone, Tramadol
 - Poorly studied
 - Cautious dosing
- Fentanyl
 - Limited studies
 - No known active renal metabolites
 - No dose adjustment short term (consider decreasing dose long term)

Liver Failure

Which opioid should I use in liver failure?

- Impaired oxidation and glucuronidation
- Avoid Morphine and Tramadol
- Avoid transdermal preparations

Renal and Liver Failure Summary

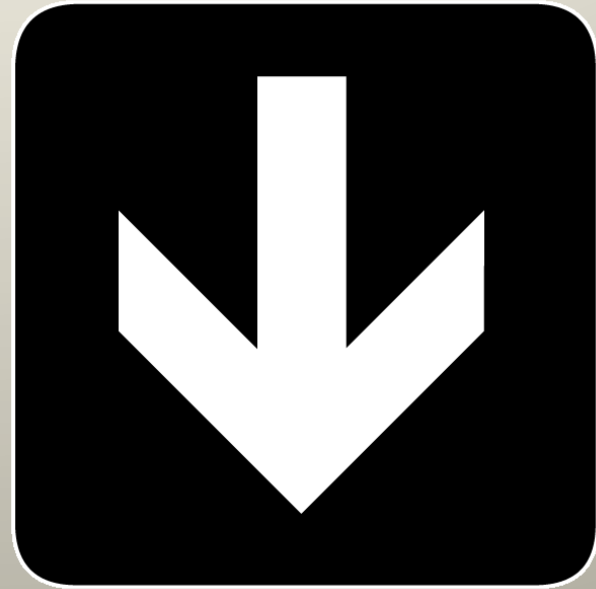
- Cautious opioid dosing
- Consider short acting preparations
- Consider longer dosing intervals
- Avoid Morphine, Codeine, Tramadol, Meperidine
- Fentanyl safer choice

Opioid Reduction

- How should I dose adjust opioids in the elderly patient?
- Require less opioid than younger patients to achieve same relief
- Opioid sensitivity increased by 50%
- Pain intensity decreased by 10-20% each decade after 60 years of age

Opioid Reduction for Elderly

- Initiate opioids at 25-50% lower dose than recommended for younger adults



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Opioid of Choice

- Mu opioid agonists first line for moderate-severe acute pain in older adults
- Morphine opioid of choice for most
 - Caution with renal dysfunction

General Guidelines for Choosing Non-Opioid Analgesic Agents

1. Use cautiously in the elderly, who are at greater risk of developing gastrointestinal bleeding, renal toxicity, and renal failure.
2. Patient who are dehydrated are at high risk of acute renal impairment.
3. All have the potential for gastrointestinal side effects.
4. They may interfere with the effects of many hypertensives.
5. There is little clinical evidence of individual superiority of one particular agent over another.
6. Newer agents may cost as much as fifty times more than older ones.

Pearls of Pain Management

- Treat pain early and often, anticipate pain prior to its recurrence
- Reassess patient frequently
 - Pain as the fifth vital sign
- Use enough agent to achieve the desired effect, or until an undesirable side effect occurs. Switch to a different agent if side effects occur and pain persists, or if the initial agent is not effective.
- Select the route of administration that allows the fastest relief for the patient but neither delays definitive care nor causes unnecessary, additional discomfort.

Pitfalls of Pain Management

- *Wrong agent*
 - Most opioids can achieve the desired degree of analgesia
- *Wrong dose*
 - Titrate the dosage to achieve the desired degree of analgesia
- *Wrong route*
 - Choose route to optimize relief and minimize side effects
- *Wrong frequency*
 - Preventing pain from recurring by earlier readministration of opioid will result in less opioid use overall and the retreatment of pain that has had time to reestablish itself
- *Incorrect use of adjuvant agents*
 - Adjuvant agents do not reduce the dosage of opioid needed.

Review Question

- Describe the role of the nurse assisting with procedural sedation in A & E.

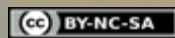
Answer

- Monitor baseline vital signs and level of consciousness
- Explain procedure to patient and family
- Obtain venous access
- Equipment: cardiac monitor if indicated, blood pressure monitor, pulse oximeter, suction, oxygen equipment, endotracheal intubation equipment, IV supplies, reversal agents
- Assist with medications
- Maintain continuous monitoring during procedure
- Document vital signs, level of consciousness, and cardiopulmonary status every 15 minutes
- Post-procedure discharge criteria

Group Work

- In small groups let's look at nursing triage form and discuss how to include concepts related to:
 - Fluid & Electrolyte Balance
 - Pain

Questions



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