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# PACU, Module 3 - Pain Management in PACU

Presented by:  
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# Pain Management in PACU: Part 1

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## Objectives

- At the Conclusion of the course the participant will be able to
  - 1. Define chronic pain
  - 2. Define acute pain
  - 3. List 4 physiological properties of pain
  - 4. Describe text book versus reality of pain
  - 5. Describe at least 6 blocks and the areas that are effected
  - 6. List in order of PACU RN's preference analgesia
  - 7. Describe 2 objective sign of pediatric pain

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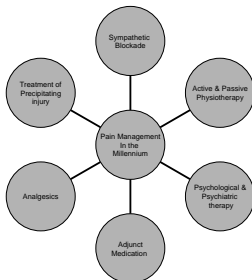
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## Goal of Pain Management



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## Pain Management in PACU

### □ Case Presentation

- 24 year old who presents for same day surgery for repair of right ACL with mmt. The patient is healthy ASA 1 who has concerns with postoperative pain management and nausea. The procedure is booked for 3.5 hours.

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## Pain Management in PACU

- How much pain will the patient have?  
Spinal, epidural, general anesthesia
- Will the patient be pain free in PACU?  
Does he still have epidural in place?
  - Is it still working?
- Did he have spinal?  
How long will it last  
Did they put a block for postoperative pain/

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## Outline

- Introduction to pain
- New Trends in Pain Management
- Current Trends in Pain Management

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### Introduction to Pain

- ❑ What is pain?
- ❑ Are we meeting our patient's needs?
- ❑ What does the research say?
- ❑ Has managed care changed the way we manage care?

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### Text book Definition of Pain

- ❑ Pain is defined as unpleasant sensory and emotional experience associated with actual or potential tissue damage or describe in terms as such.

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### Definition of Pain - Reality

- ❑ Pain is whatever the experiencing person says it is; existing whenever he or she says it does. This definition supports the subjective nature of pain, yet challenges the PACU nurse who looks for objective signs.

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### Definition of Pain Conceptual Model

- This model identifies the interaction between nociception, pain experience and pain behaviors. Between the site of tissue damage and perception of pain lies a complex series of physiological processes. Collectively these are termed nociception.

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### Definition of Pain: Nociception

- Four Physiologic processes are involved
  - Transduction: Noxious stimuli release neurotransmitters
  - Transmission: Propagation to higher centers in PNS & CNS
  - Modulation: Inhibitory effects at the spinal cord
  - Perception: All contributing influences interact to produce the final subjective and emotional experiences

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### Definition of Pain: Acute Pain

- Acute pain is defined as pain of a brief duration that subsides as healing process occurs. This pain may range from mild to severe in intensity. Most pain experienced in PACU is of this type.

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### Definition of Pain: Chronic Pain

- Chronic pain, in contrast, is prolonged, usually lasting longer than 3 to 6 months.

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### Pain Assessment

No Pain	Pain	Significant Pain
Not requiring intervention	Surgical pain at Surgical site	Not explained by surgical trauma

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### Definition of Pain: Tools

- Pain scales
  - 0-10 pain scales
    - 0= no pain
    - 10= severe pain
- Children/Kids
  - Facial expressions
  - Crying = pain,
  - Crying  $\neq$  anxiety



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Definition of Pain: Postoperative Pain

- Factors influencing the occurrence, intensity, quality and duration of pain
  - The site
  - The patient's psychological profile
  - The preoperative drug history
  - The presence of postoperative complications
  - Anesthetic management
  - Quality of postoperative care

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Definition of Pain: Postoperative Pain

- Causes of Postoperative Pain
  - Incisional: skin and subcutaneous tissue
  - Deep Tissue: cutting, coagulation, retraction
  - Positional: OR table, position, retraction
  - Resp. tract: ET tube, sore throat
  - IV site: needle, extravasation, irritation
  - Ancillary: cast, tight dressing, catheter, NG
  - Rehab activity: coughing, deep breathing, voiding

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Definition of Pain: Physiological Signs

- Manifestations of sympathetic stimulation
  - Tachycardia
  - Dilated Pupils, increased muscular tension
  - Hypoxemia, restlessness, sweating

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Definition of Pain: Balanced Anesthesia

- ▣ Balanced Anesthesia signifies the co administration of analgesics that selectively affect the physiologic process involved in nociception.

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Definition of Pain: Pre-emptive Anesthesia

- ▣ Administration of analgesics or blocks prior to the genesis of pain has been shown to reduce or eliminate central stimulation of nociceptors. This achieved complete analgesia and perhaps affected morbidity and clinical outcomes.

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New Trends in Pain Management

- ▣ IV medication in PACU
- ▣ Peripheral nerve blocks
- ▣ Spinal Anesthesia: do we use it for pain control?
- ▣ What do PACU nurses want us to use?

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### Case Presentation

- This is 26 year old female just arrived in PACU after 6 hour surgery of right wrist reconstruction with bone graft from left hip. The patient had an arm block. Do you expect the patient to have much pain? What do you do for the hip pain?

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### Blocks by Type

- Cervical Plexus block: Head i.e. thyroid
- Axillary block: Arm – elbow to hand & arm
- Inter-Scalene block: Shoulder and below
- Intercostal block: ribs, thoracic area
- Epidural: Head, thoracic
- Site infiltration; Umbilicus to diaphragm
- Spinal: Lower abdominal
- Femoral: legs
- Ankle block: foot and below
- Lateral femoral coetaneous: skin graft upper leg

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### Dermatome: Test for Effect

Sympathetic	Nipple T4	Cold temperature Alcohol, ice chips
Sensory	Zyphoid T6	Pain Needle, tongue blade
Motor	Umbilicus T10	Movement Ask to lift area

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## Pain Management in PACU

- ❑ Non opioid – toradol
- ❑ Narcotic – Morphine – mild to moderate pain
- ❑ Morphine with toradol – moderate or more pain
- ❑ Morphine with fentanyl – moderate or more pain

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## Acute Analgesic Modalities

- ❑ Non steroidal anti-inflammatory
- ❑ Narcotics
- ❑ Propofol (sedation)

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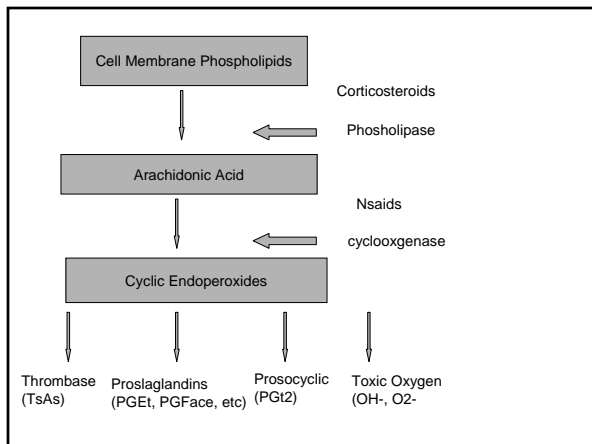
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Nonsteroidal Anti-inflammatory drugs

- ❑ Acetaminophen – lacks peripheral anti-inflammatory activity
- ❑ Aspirin – standard, inhibits platelets, bleeding
- ❑ Motrin – standard
- ❑ Naprosyn – Oral
- ❑ Toradol – PO, IV, not to exceed 5 days

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Non steroidal Anti-inflammatory Drugs

- ❑ Toradol; Analgesic efficacy – PO, IV not to exceed 5 days
- ❑ Works by reducing prostaglandin synthesis, secondary to cyclooxygenase (cox) inhibition
- ❑ IV onset 20 min vs. 6 min MSO4
- ❑ Poor drug by self, but it is effective adjunct to all forms of opioids
- ❑ Affective adjunct to PCA for management of post gynecologic surgical pain

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IV Toradol as an Adjunct to PCA for Post Gynecologic Surgical Pain

- ❑ Case study
  - N 62 standard PCA 3 groups
- ❑ Group 2; 30mg in PACU and 15 mg Q6Hx4
- ❑ Group 3; 60mg in PACU and 30mg Q6Hx4
  - Patients in group 2 & 3 required on average 20% less MSO4
- ❑ Toradol reduces pain postop by inhibiting synthesis and release of prostaglandin at the site of surgical trauma

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## Opioids

- ❑ Morphine
- ❑ Codeine
- ❑ Dilaudid
- ❑ Percocet
- ❑ Tylox
- ❑ Stadol
- ❑ Nubain
- ❑ Talwin
- ❑ Fentanyl
- ❑ Sufentanil
- ❑ Alfentanil
- ❑ Remifentanyl

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## Opioid Receptors

- ❑ MU1: Supraspinal analgesic, miosis (pinpoint pupils)
- ❑ MU2: Respiratory depression, dependence, sedation, bradycardia, decreased GI motility, euphoria
- ❑ Delta: Analgesia, behavior
- ❑ Sigma: Psychomotor stimulation, hallucinations
- ❑ Epsilon: Dysphoria, analgesia

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## Regional Anesthesia: Pre-emptive Analgesia

Interscalene Block- shoulder procedures

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## Interscalene Blocks - ISB

- “Addition of ISB to General Anesthesia for Patient’s undergoing Open Shoulder Procedures”
  - Case Study N=52
    - Experimental group had significantly lower pain scores in PACU and Day 1
    - Discharge time was not decreased due to DC criteria
    - Surgeon’s request for deeper anesthesia to keep pressure down meant longer PACU stays

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## Axillary Block

- Below elbow procedures
  - Maximum of morphine in PACU .1-.2mg/kg(10-20mg)
  - Alfenta- short procedures- wears off quickly
  - Remifenta – Preop infusion – turn off wears off quickly

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## Intercostal Nerve Block - ICNB

- “Intercostal Nerve Block for Lumpectomy, Superior Postoperative Pain Relief”
- Case Study N=48 Scheduled Breast Biopsy
  - 24 hours postop: 22of 23 patients with ICNB did not require analgesics
  - No PACU drugs were needed in the ICNB group

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## Femoral Nerve Block

- Innervates the leg but not all the leg
- Must use in combination with Sciatic Nerve block
  - Sciatic nerve has 2 portions
    - Perineal nerve- Lateral to bottom of foot
    - Tibial nerve- medial to foot

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## Knee Procedure

- 2/3 Femoral nerve block
- 1/3 Sciatic nerve block

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## Foot Procedure

- 2/3 Sciatic nerve block
- 1/3 Femoral nerve block
  - 5 nerves of the foot
    - Distal Femoral – saphaneous nerve
    - Tibial Nerve
    - Sural Nerve
    - Superficial Perineal Nerve
    - Deep Perineal Nerve

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## Orthopedic Case Presentation

- Stats N=12 12 ACL procedures 2 months
- 100% GA with PNB: SNB/FNB
- .5% Marcaine with epi 1:200K
  - Ave intraop narcotic used 100-200mcg Fentanyl
  - Ave PACU MSO4: none
  - Ave discharge time: 4 hours
  - Ave sensory pain relief: 20-22 hours
  - Ave home percocet/tylox used in 1<sup>st</sup> 24 hours: 2

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## Foot Blocks

- Ankle blocks
  - Bunions & toes
  - 27-29 gauge needles

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## Central Nerve Block

- Cervical Blocks
  - Usually done in pain clinic not OR
- Spinals
  - Umbilicus and below
- Epidurals
  - Diaphragm and below

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## Orthopedic Case Presentation

- Stats N=372 52% with spinal anesthesia
  - Ave case time 59.37min (20 min/3.15hours)
  - Ave discharge time; 6 hours
  - 83% Marcaine, 15% Lidocaine, 2% Tetracaine
  - Half spinal had narcotics
  - 20-25mcg Fentanyl or 5-10mcg Sufenta

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## Definition of Pain: Research Notes

- What do PACU nurses want us to use?
  - Spinals ; bad
  - Epidurals ; liked
  - Blocks ; Great
  - General Anesthesia ; ok

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## Current Trends in Pain Management

- Patient Controlled Analgesia: IV and CLE
- Site specific continuous epidurals
- In House Pain Service

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### Case Presentation

- 44 year old male with 3 day history of bowel obstruction. The patient has been in pain and was started on PCA on arrival to PACU, the patient's pain score is 8/10.

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### “The Efficacy of Adding Continuous IV MSO4 Infusion to PCA for Abdominal Surgery”

- Case Study N=96
  - VPS and VAS were greater with movement
  - No difference between groups
  - Continuous infusion of 1mg/hr improves analgesia during the first 24 hours, but has greater complications

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### “The Knowledge and Attitude of PACU nurses regarding Postoperative Epidural Analgesia”

- N=85
  - 78% Correct score on T/F questions
  - 38% correct score on M/C questions
  - 73% positive attitude toward epidural analgesia
  - 77% correct management of epidurals
  - 32% very satisfied with APS
  - 62% somewhat satisfied with APS

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“Thoracic Epidural compared with PCA MSO4 after Abdominal Surgery”

- N=21
  - Median pain scores were significantly greater in PCA group
  - Analgesic failure occurred in 81% of PCA group
  - No failures in the epidural group
  - PFT's: MSO4 >>>CTE
  - Resp. depression: MSO4>>>CTE
  - Sedation: MSO4 >>>CTE
  - Emetic: MSO4 >>>CTE

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Pain in Pediatric Patient

- Myths
  - Do remember
  - Do feel pain
  - Crying may or may not = pain
- Other pain signs
  - Facial grimacing
  - Bulging forehead
- Tend to “keep out of way”

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Pediatric Pain

- Treatment
  - Topicals
  - Opioids
  - Tylenol (PO or PR)
  - Toradol
  - Blocks
  - Local infiltration by surgeon prior to closure
  - Caudals warn of “numb butt” feeling

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“Postoperative Analgesia in Kids: A Prospective Study of IM Injection MSO4 vs. Continuous MSO4”

- N= 46
- Pain score less in IV group
- IM scores were variable
- Neither group had good pain control
- IV superior to IM
- IV delivers more narcotic effectively without compromising safety

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“Post Tonsillectomy Infiltration with Bupivacaine”

- N=43
- Pain scores less in infiltration group
- Marcaine .5% with epi 1:200K
- Post anesthesia pain scores and opioid requirements were decreased
- Infiltration showed superior analgesia in immediate postoperative period

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