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## Managing Post-Op Pain A Multimodal Approach

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### Objectives

- Describe Multimodal pain management techniques.
- Explain the difference between epidural analgesia and peripheral nerve block analgesia
- Recognize sites and benefits of regional analgesia in the post-op patient
- Describe the nursing responsibilities of caring for the patient with a peripheral nerve block

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### From a historical standpoint....



*Few things we do for patients are more fundamental to the quality of life than relieving pain"*

Colleen J. Dunwoody MS, RN-BC

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## The Goals of Pain Management in 2008

- Manage the unpleasant experience of pain
- Minimize the physiological stress response generated by pain
- Optimize patient recovery and reduce hospital length of stay
- Minimize the development of chronic pain syndromes related to surgical procedures

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## Two major types of pain

<p><b>Nociceptive</b> normal processing of stimuli</p> <p><b>Somatic -</b> bone, joint, muscle, skin or connective tissue well localized</p> <p><b>Visceral -</b> visceral organs, related to tumor involvement (more localized) or obstruction poorly localized</p>	<p><b>Neuropathic</b> abnormal processing of sensory input by the peripheral or central nervous system</p> <p><b>Centrally activated -</b> phantom pain, RSD</p> <p><b>Peripherally activated -</b> diabetic neuropathy</p>
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## Processes involved in Nociception

**Modulation**  
Substances are released to inhibit the pain impulses

**Transduction**  
"cell damage"  
At the site of injury

**Transmission**  
Occurs in the dorsal horn of the spinal cord

**Perception**  
The pain experience becomes "conscious"

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Pain: Clinical Manual, pp 18-23

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## What is "Multimodal" or "Balanced" Analgesia?

- A combination regimen using two or more medications or interventional techniques
- May include more than one route of administration
- The synergistic effects between different drug classes can enhance the analgesic effects of each drug
- Using different agents allows for reduced doses of each medication and subsequent reduced side effects
- Especially effective in patients who are at risk for the side effects of large doses of opioids:
  - frail elderly
  - obstructive sleep apnea
  - chronic pain patients

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## "Pre-Operative" Medication

- This concept takes the multimodal approach to analgesia an additional step
- celecoxib (Celebrex®): 200-400mg
  - Continued 5 days post op
  - Contraindicated in renal insufficiency/sulfa allergy
- pregabalin (Lyrica®): 50, 75, or 150 mg
  - Continued 5 days post op
  - Dose depends on procedure, patient weight and age
- Oxycontin®: 10mg
  - Only used x 1 dose pre op
  - Physician specific
- The goal is to treat pain before it becomes perceived by the patient

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## The Main Components of "Balanced" or "Multimodal" Pain Management

Opioids	Blocks the pain signal by binding to opioid receptor sites - in the CNS PO or IV
NSAIDs (selective and non-selective)	Blocks the inflow of the pain signal from the site of injury- use with caution in patients at risk for side effects (GI bleeding) PO or IV
Anti-convulsants (pregabalin and gabapentin)	Works to decrease the hyperalgesic response from the CNS PO
Local Anesthetics	Blocks the inflow of the pain signal in the periphery PNB or Epidural

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## ketorolac (Toradol®)

- The only parenteral drug in the NSAID class
- Non-selective
- Works in the peripheral nervous system
- Good to use in the immediate post-operative period when patients are NPO
- Limit use from 2 – 5 days
- Avoid use with impaired renal function



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## Anti-convulsant Medications

- gabapentin (Neurontin®)
- pregabalin (Lyrica®)
- This class of medications manage the spontaneous firing of sensory neurons associated with neuropathic pain
- Reduces pain with movement and can reduce chronic post surgical pain syndromes caused by neuronal plasticity



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## Incidence of Post-Surgical Chronic Pain (Meta-Analyses)

• Breast surgery	67%
• Thoracotomy	67%
• Sternotomy	33%
• Hysterectomy	67%
• Inguinal Hernia Repair	67%

Source: Breivik H. Postoperative pain: towards optimal pharmacological and epidural analgesia. In: Pain 2002 – an updated review. Seattle, 2002.

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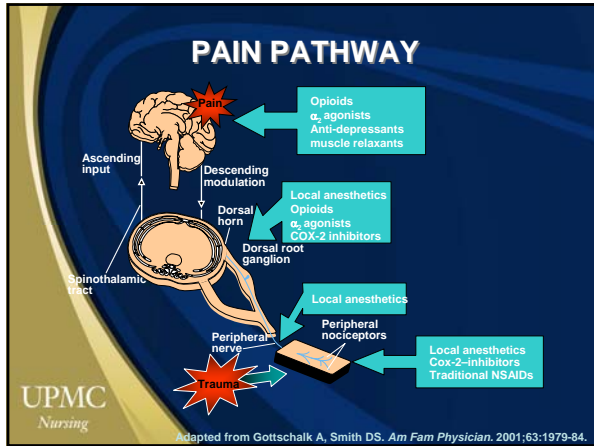
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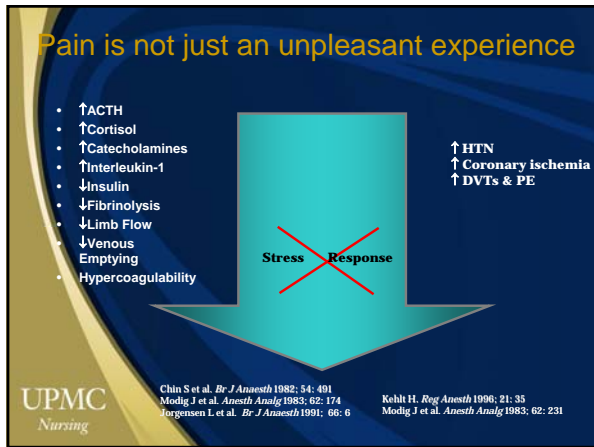
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## Pain...

- The goal is to decrease the amount of opioids used to control pain
- Bolus the nerve block first...
- Use opioids to augment the nerve block
- Anticipate pain; medicate prior to activity
- **\*\*ASSESS and RE-ASSESS!**



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## Sedation...

- Your patient will have opioids and anesthetic agents on board
- Sedation always precedes respiratory depression
- Obstructive Sleep Apnea patients at higher risk



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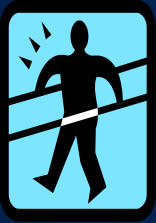
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## Motor/sensory function...

- A femoral block; associated with a weak quadriceps muscle
- A sciatic block; Watch foot function
- Important to assess before ambulation
- If unable to ambulate; call and have the rate of the infusion decreased
- The patient may need an supportive device



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## Maintain the catheter...

- Held in place with steri-strips/tegaderm
- Accidental dislodgement? It happens
- A disconnect? Can be reconnected
- Maintain the infusion...
- If all is lost? Continue to assess pain, use medications that are ordered for breakthrough pain...call the pain team if needed



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## Local Anesthetic Toxicity...

What to look for:

**Early S/S:** circumoral numbness, metallic taste, dizziness, blurred vision, tinnitus, decreased hearing

**Late S/S:** restlessness, tremors progressing to seizures, cardiac arrhythmia's



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## Patient Safety...

- "I feel good..."
- Educate patients not get OOB without assistance when an extremity is blocked
- Utilize an immobilization device to a lower extremity if needed
- PT should evaluate prior to getting OOB



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## Patient/Family Education...

- The numbness can be alarming – leg feels “heavy”
- If dorsi/plantar flexion is lost, reassure that this is probably temporary
- Reinforce AGAIN, don't attempt to get OOB without assistance



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**Peripheral Nerve Block Infusions**

**Pain Pumps for Nerve Blocks at Home**

Patients and families need reinforcement about a pain management technique they may not be familiar with

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## Anticoagulation?

- Chelly, J.E., Szczodry, D.M., & Neumann, K.J.
- Published 2008
- Volume 101
- Page 250-254



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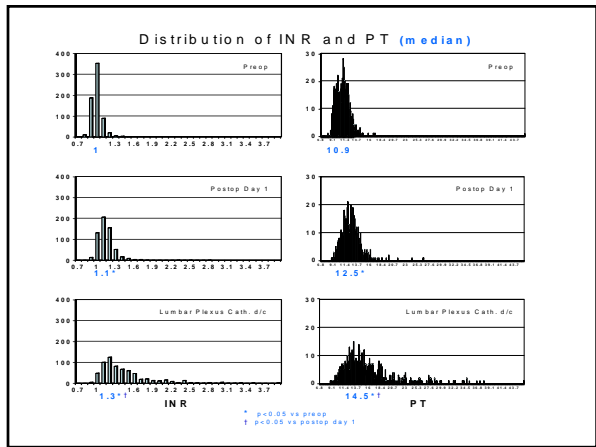
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## Distribution of Warfarin Dosing

Dose (mg)	POD 0	POD 1	POD 2
0 – 2.5	86	598	330
>2.5 -5.0	75	27	324
>5.0 – 7.5	434	17	11
> 7.5	75	28	5

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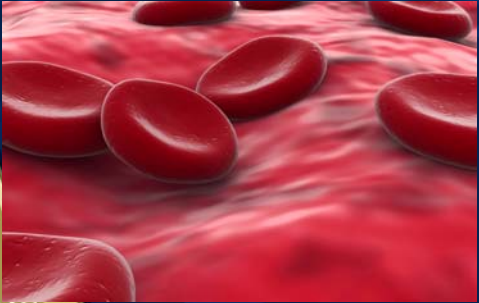
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**Thromboprophylaxis vs. therapeutic anticoagulation**



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**UPMC Shadyside AIPPS**

- Started in July of 2002
- 2 Anesthesiologist attendings/week
- 3 - 5 fellows/residents/week
- Average 22 -24 catheter/placements per day
- 35-55 patients on the Service every day
- Over 10,000 patients seen on rounds/year

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**Basic Guidelines for Programs**

- Mission
- Scope of services
- Policy/Procedures
- Staff education and development
- Financial/billing procedures
- Supplies and Equipment
- Personnel
- Quality Assurance Measures

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## Questions?

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H.Kehlet and J. Dahl, The value of "multimodal" or "balanced" analgesia in postoperative pain treatment, *AnesthesiaAnalgesia* 77 (1993), pp. 1048-1056.

J.Golembowski, Postoperative pain management – is there a role for gabpentin or pregabalin?, *Journal of Peri-Anesthesia Nursing*, 22-2 (2007), pp. 136-138.

M.McCaffery, and R.K. Portenoy, Non-Opioids, *Pain: Clinical Manual* (2<sup>nd</sup> ed.), Mosby: St. Louis (1999), pp. 129-160.

R.K. Portenoy and M. McCaffery, Overview of the three groups of analgesics, *Pain: Clinical Manual* (2<sup>nd</sup> ed.), Mosby, St. Louis (1999), pp. 103-129

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