

Post-operative Pain

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Goals:

- Understand the importance of treating pain as it relates to post-op recovery
- Become acquainted with various pain pathways
- Describe the use/pros/cons of 3 major post op analgesic modalities

Case Problem

- 53 year old female with pmhx of Diabetes, Coronary Artery Disease s/p Coronary Artery Bypass Graft, Obstructive Sleep Apnea on CPAP, Hypertension and Ovarian Cancer who presents for open hysterectomy, Bilateral Salpingoopherectomy, debulking and staging.

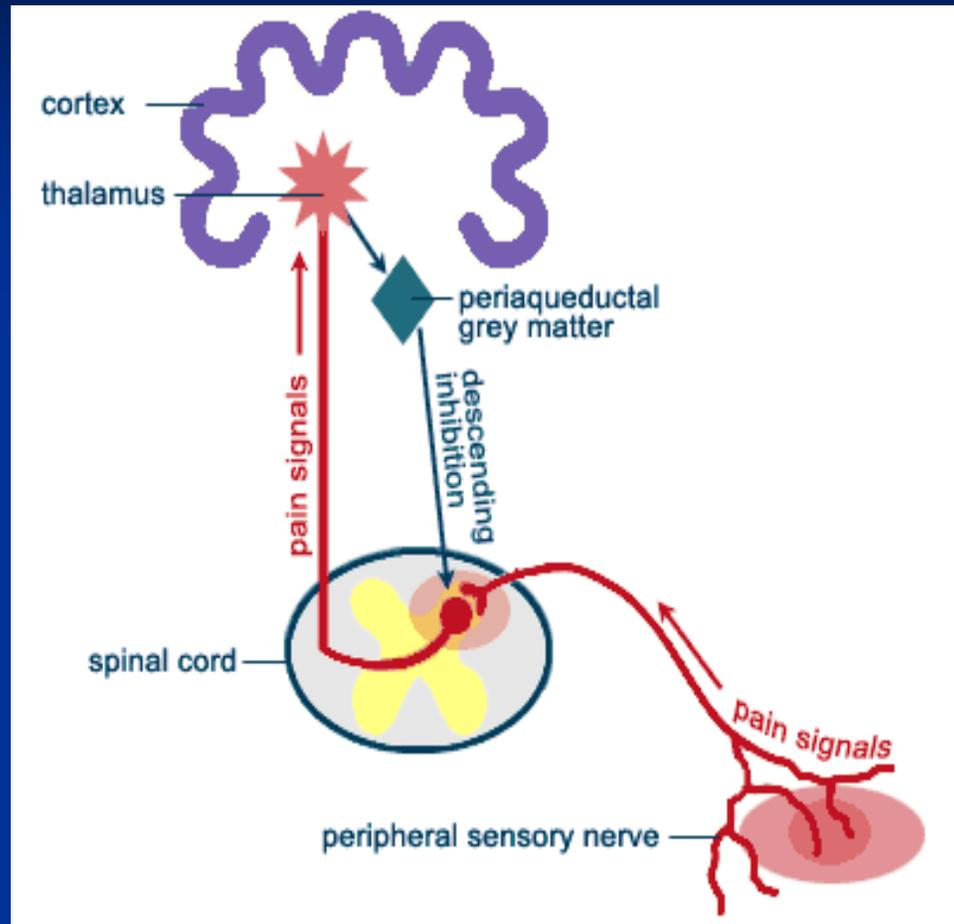
Why Treat Pain?

CV:	Tachycardia, hypertension, and increase in cardiac work load
Pulm:	Respiratory muscle spasm (splinting), decrease in vital capacity, atelectasis, hypoxia, and increased risk of pulmonary infection
GI:	Postoperative ileus
Renal:	Increased risk of oliguria and urinary retention
Coag:	Increased risk of thromboemboli
Immun:	Impaired immune function
Muscular:	Muscle weakness and fatigue. Limited mobility can increase the risk of thromboembolism

Looking at the table above how would NOT treating her pain affect her?
Remember she has DM, HTN, CAD s/p CABG and OSA.

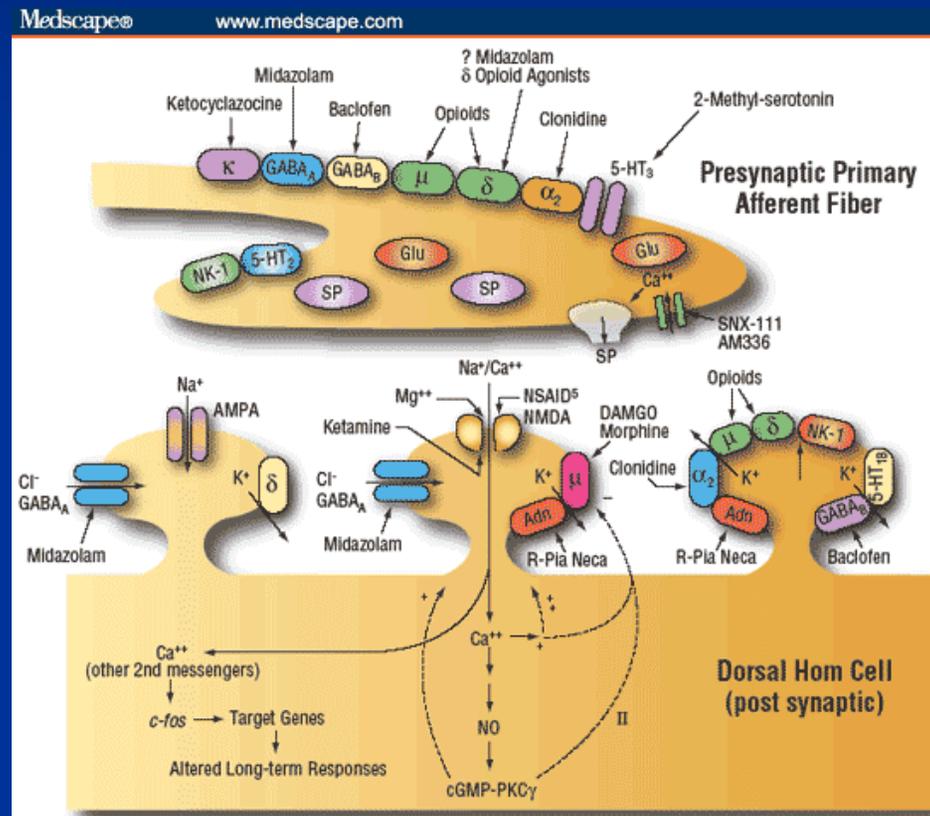
Joshi GP, Ogunnaike BO: Consequences of inadequate postoperative pain relief and chronic persistent postoperative pain. *Anesthesiol Clin North Am* 2005; 23: 21; Rowlingson JC: Update on acute pain management. *International Anesthesia Research Society Review Course Lectures* 2006: 95; and Kehlet H: Multimodal approach to control postoperative pathophysiology and rehabilitation. *Br J Anaesth* 1997; 78: 606

Anatomy & Physiology of Pain



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Many different ion channels and chemical mediators involved in pain sensation



<http://img.medscape.com/fullsize/migrated/editorial/clinupdates/2005/3799/rauck.fig1.gif>

Methods of Analgesia

- Opioids
 - Non-Opioids
 - Local Anesthetics
-
- Goal of treatment: balance satisfactory analgesia and ability to promote recovery and rehabilitation
 - Modality of pain txt will also vary with surgical procedure and patient characteristics

Opioids

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- Conventional vs IV PCA
- PCA: infusion pump that enable pt to deliver doses of analgesic drugs
 - Pro:
 - As opposed to prn opioids trough and peaks are less severe with IV PCA
 - Analgesic level is better matched to analgesic need
 - pts have autonomy over pain control.

Opioids continued...

- Con: May lead to pruritis, ileus, sedation, respiratory depression
- may not cover all major surgical pain, but may provide additive effect"

Given these facts and our pt's pre-existing health problems, how would giving our patient opioids affect her post op course?

Non-Opioids

- Ex: NSAIDS (Cox1-2), Ketamine (NMDA), Para-aminophenol (Cox-3), Clonidine, Precedex (alpha₂ agonist)
- Pro:
 - When given in combo with opioids NSAIDS result in better pain relief decrease opioid consumption
 - Incidence of respiratory depression reduced
 - Incidence of post-op N/V decreased, improved mobility, earlier bowel function
- Con:
 - Not 1st line analgesia for major surgery bc can't provide effective pain relief
 - May affect platelet fxn, alters renal function, peptic ulceration

How would this modality affect our patient?

Local Anesthetics

- Ex: epidural and regional block catheters
 - epidural: low dose infusion of local anesthetic into the epidural space
 - block: local anesthetic around specific nerve fascicle
- Pro:
 - Decreases opioid requirement
 - Beneficial effects on bowel mobility
 - ↓ rehab time, ↓ pulm morbidity, ↓ time to extubation of trachea, major thoracic, vascular dysfunction, ↓ cardiac ischemia in high risk pts, ↓ hospital stay
- Con:
 - Requires a higher level of technical mastery for placement
 - Very small potential for nerve damage, infection, bleeding

Given these facts how would giving our patient local anesthetic ie epidural affect her post op course?

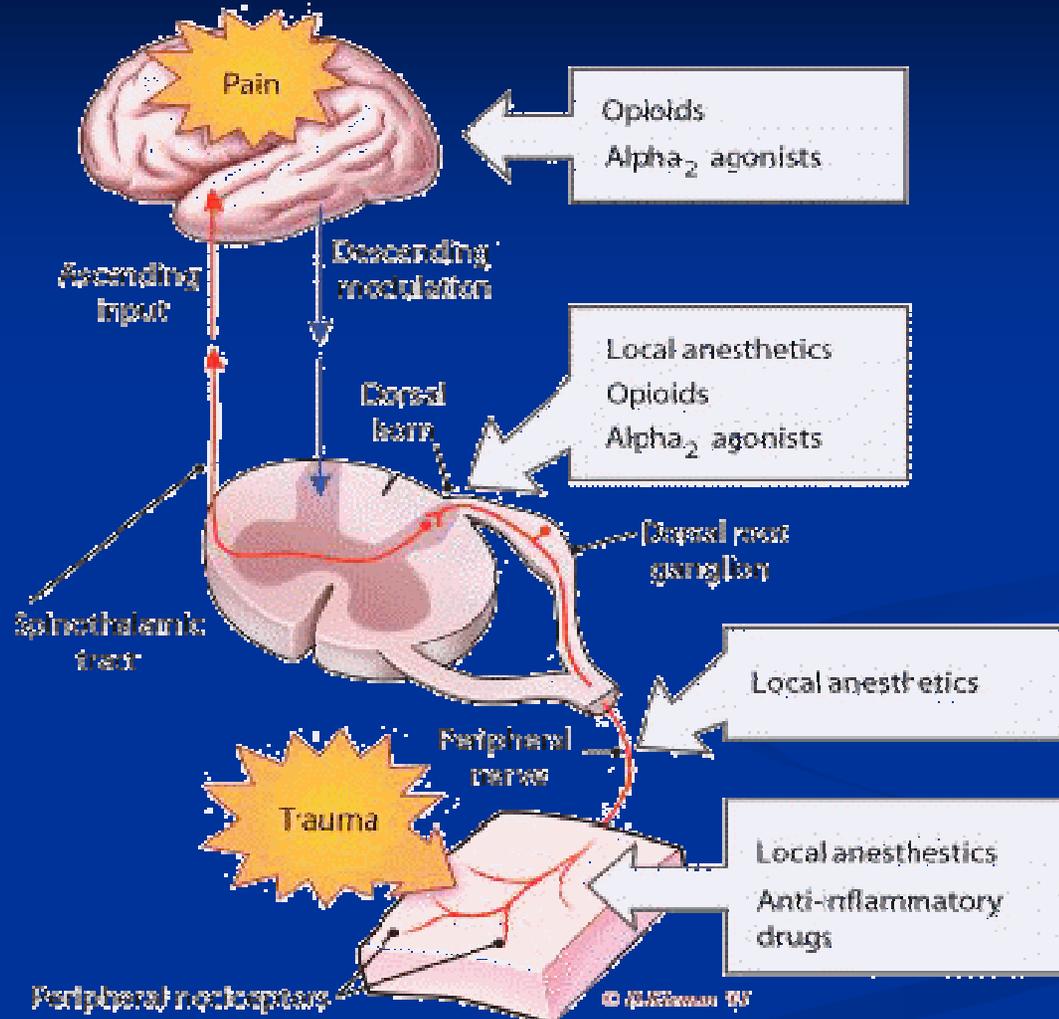
What Would You Do?

- Given these three types of analgesic options, which analgesic modality would you use to treat our patient's post-op pain? Remember, combinations are allowed!

Summary:

	Opioids	Non-Opioids	Local Anesthetic
Mechanism:	Mu receptor agonist	Cox1-2, NMDA, Cox-3, alpha ₂ agonist	Block Sodium channels preventing nerve conduction
Pro:	-less peak and troughs -analgesia level matched to need -autonomy of pain control	↓ N/V, respiratory depression	↓ rehab time, ↓ pulm morbidity, ↓ time to extubation of trachea, major thoracic, vascular dysfunction, ↓ cardiac ischemia in high risk pts, ↓ hospital stay
Con:	-respiratory depression -pruritis -ileus	-ineffective as sole analgesic -can affect renal, hepatic function	Technique Bleeding Trauma

Providing Postoperative Pain Relief



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