What do we need to know about pain control in labor?

- Explain how gate-control theory applies to non-pharmacologic pain management
- Identify medications and side effects used for analgesia during labor
- List complications that can occur to the patient undergoing general anesthesia
- Describe nursing management during neuraxial anesthesia

A BETTER PAIN SCALE

0: Hi. I am not experiencing any pain at all. I don't even know why I am here.
1: I am completely unsure whether I am experiencing pain or itching, or maybe I just have a bad taste in my mouth.
2: I probably just need a Band Aid.
3: This is distressing. I don't want this to be happening to me at all.
4: My pain is not f---ing around.
5: Why is this happening to me???
6: Ow. Okay, my pain is super legit now.
7: I see Jesus coming for me and I'm scared.
8: I am experiencing a disturbing amount of pain. I might actually be dying.
9: I am almost definitely dying.
10: I am actively being mauled by a bear.
11: Blood is going to explode out of my face at any moment!

What do we need to know about pain control in labor?
Pain Control

- Nearly all women in labor will experience pain
- Perception of pain is highly individual
- Control pain without interrupting the labor process or doing harm to the woman or her fetus

Factors contributing to pain in labor

- Intensity and duration of contractions
- Rate of cervical dilation
- Perineal distention
- Size and position of fetus
- Procedures
- Fatigue
Psychosocial factors contributing to pain perception

- Childbirth preparation
- Support persons
- Loss of control

Continuum of Pain Management

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Gate-control theory of pain transmission

- Small and unmyelinated fibers: pain and pressure of uterus, cervix and pelvic parts
- Large myelinated fibers: skin impulses
- Habituation to sensation – use various techniques
Pharmacologic - Analgesia

**Analgesia**: Decreases or blunts pain sensation

- **Opioids**
- Agonist or Agonist/antagonist binding at opioid receptor sites

  **Side Effects**
  - Dry mouth, urinary retention, constipation
  - N/V, respiratory depression, sedation
  - Decrease FHR variability
  - Increased risk of neonatal respiratory depression requiring resuscitation

Pharmacologic - Anesthesia

- **Anesthesia**: Complete loss of sensation
- **Local anesthesia**: Infiltration of perineum and vagina or pudendal nerve block
- **Neuraxial anesthesia**: Blocks sensation from a certain region of the body
- **General anesthesia**: Complete unconsciousness

  Nurse assist with cricoid pressure during rapid induction sequence.

Types of Anesthesia

- **Neuraxial Anesthesia/Analgesia**: Blocks sensation from a certain region of the body.
- **Spinal Block**: Single injection of local anesthetic into subarachnoid space.
- ** Epidural Block**: Needle and catheter placement in the epidural space – before crossing the dura
Neuraxial Anesthesia

- Contraindications
  - Coagulation disorders
  - Infection at site
  - Hypovolemia/hypotension

- Relative contraindications
  - FHR pattern associated with u/p insufficiency
  - Spinal deformity
  - Ventricular-outflow obstruction – aortic stenosis, hypertrophic cardiomyopathy

Nursing care of patient undergoing neuraxial anesthesia

- Insure informed consent is completed
- Insure patient’s questions are answered
- Bolus of IV fluid (LR, NS)

Nursing care of patient undergoing neuraxial anesthesia

- Time-out verification
  - Correct person
  - Correct procedure
  - Correct equipment
  - Site & position
- Positioning/support of patient
  - Sitting or lateral
- Monitoring
  - VS
  - Pain perception
  - Fetoresponse
  - LOC
  - Site tubing/pump functioning
Nursing care of patient undergoing neuraxial anesthesia

RN can:
- Monitor mother & fetus
- Replace empty infusion bags with new of same medications & concentration according to anesthesia orders
- Stop infusion if there is safety concern or after the birth
- Remove catheter according to institutional policy after education
- Initiate emergency measures as indicated and notify anesthesia & OB care providers

RN cannot:
- Re-bolus by injection or increasing infusion rate
- Increase or decrease infusion rate
- Re-initiate infusion once stopped
- Manipulate dose or interval rates of PCEA
- Obtain informed consent – however, may witness consent

Epidural Procedure
- Site selection
- Prep and drape
- Local site infiltration
- Insertion of needle
  - Ls 18G
  - loss of resistance technique
Epidural Procedure

- Insertion of catheter
- Test dose
  - Detect subarachnoid or intravascular injection
- Secure catheter
- Assessment of block
  - Sensory & motor
  - Onset of action
  - Missed segments (windows)

Epidural Drugs

- Act on nerve fibers crossing the epidural space
- Bupivacaine & Ropivacaine
- Fentanyl
  - Reduces requirement of local anesthetic
  - Spares motor fibers
  - Reduces hypotension
Complications of Anesthesia

**MALIGNANT HYPOTHERMIA**
- Potentially lethal complication of inherited muscular disorder
- Administering volatile anesthetics or neuromuscular blocking agents triggers hypermetabolic state
- Symptoms:
  - Hypermetabolism (increased metabolism)
  - Muscle rigidity (masseter spasm)
  - Tachycardia & tachypnea
  - Ventricular fibrillation
  - Hyperthermia (104°F)
  - Acidosis
  - Rhabdomyolysis — breakdown of muscle excreted in the urine — may result in renal failure
  - CHF, bowel ischemia, compartment syndrome of limbs, DIC

**ETIOLOGY**
- Caused by imbalance of intracellular and extracellular Ca⁺.
- Increased breakdown of muscle: extracellular K⁺ = dysrhythmia
- Sustained muscle contraction = increase muscle work load, oxygen consumption, lactic acid production, acidosis and elevated temp., tachycardia, cardiac dysrythmia, hypothermia, reduced cardiac output and arrest.

**TREATMENT**
- Discontinue triggering anesthetic agents
- 100% oxygen
- Dantrolene sodium (Dantrium) IV every 5 min. to restore Ca⁺ balance
- Cool — ice packs, cooling blanket, lavage
- Antiarrhythmic — no calcium channel blockers (may cause hyperkalemia)
- Post emergency care:
  - Blood gases, electrolytes, coag profile and UA
  - ICU 12-48 hours
  - Family education and referral for testing

MH Hotline: 1-800-644-9737
POST DURAL PUNCTURE HEADACHE
- 1-2% with epidural
- 10% of dural puncture with #18 Tuohy needle
- Symptoms
  - Severe HA, - sitting/standing, - supine
  - Nausea/vomiting
  - Vertigo
- Treatment goal replace lost CSF, seal puncture, control cerebral vasodilatation
  - Caffeine & opioids
  - Hydration
  - Epidural blood patch - 90+% effective

INTRATHecal Injection
- Anesthesia level ascends toward the brain stem resulting in:
  - Severe hypotension
  - Bradycardia
  - Apnea
  - Cardiac arrest
- Reversed within 1-2 hours with proper support: IV fluids, ventilation, vasopressor

INTRAVASCULAR INJECTION
- Epidural space is richly vascular – negative aspiration is not a guarantee
  - Test dose – observe closely – wait 5 min – inject in small increments
  - Large doses of LA intravenously cause seizures, arrhythmias, and cardiac arrest
  - Act quickly: ABCD’s of resuscitation
  - Meds: thiopental or propofol for seizure activity
  - amiodarone, vasopressin, or epinephrine for arrhythmia
  - Intravenous Toxicity: intraspinal emulsion
Complications of Anesthesia

OTHER COMPLICATIONS
- Spinal hematoma
  Pain, muscle weakness, bowel/bladder dysfunction
  Surgical dehiscence
- Spinal abscess
  High fever, headache, backache
  Requires urgent surgical intervention
- Anaphylaxis
  Symptoms
  Treatment: Epinephrine & IV fluids

FDA Pregnancy Categories

A: no risk demonstrated to the fetus in any trimester
B: no adverse effects in animals, no human studies available
C: only given after risks to the fetus are considered; animal studies have shown abnormal reactions, no human studies available
D: definite fetal risks, may be given in spite of risks if needed in life-threatening conditions.
X: absolute fetal abnormalities; not to be used anytime during pregnancy

Fetal Development
Timing of Teratogenic Insult

- Week 1-2: all or nothing
  Death or other cells assume its function
  No malformations
- Week 3-8: organogenesis
  Multiple systems at forming
- Week 9-10: organ systems damaged
  SGR
  Mental retardation
  Developmental / behavioral delays

References


