Understanding the Concept of Regional Analgesia/Anesthesia and Its Implications on Nursing Care

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Objectives

- To present evidence-based clinical guidelines for the assessment and management of women undergoing regional analgesia/anesthesia during labor and delivery.
- To asses nursing student's knowledge related to the concept of regional analgesia/anesthesia for pain management of the women in labor
- To offer information about the concept of regional analgesia/anesthesia directed at reinforcing a provider's understanding of their role and responsibilities in the care of the laboring patient before, during, and after the administration regional analgesia/anesthesia.

AWHONN

- The role of the Registered Nurse in the care of the pregnant woman receiving analgesia/anesthesia by catheter techniques (Epidural, Spinal< PCEA catheters)

AWHONN

- Following stabilization after either initial insertion, initial injection, bolus injection, rebolus injection or initiation of continuous infusion by a license, credentialed anesthesia care provider, non- anesthetist registered nurses, in communication the obstetric and anesthesia care providers, may
- Monitor the patient's vital signs, mobility, level of consciousness, and perception of pain
- Monitor the status of the fetus

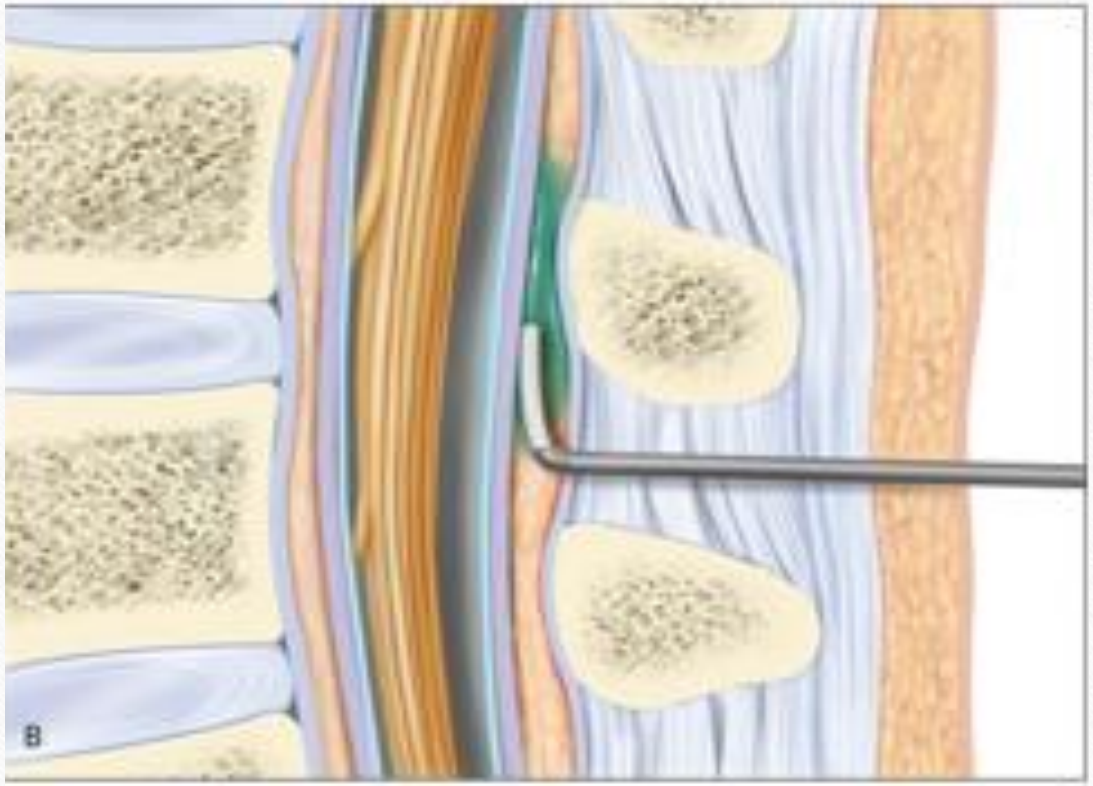
AWHONN

- Replace empty infusion syringes or infusion bags with new, pre-prepared solutions containing the same medication and concentration, according to standing orders provided by the anesthesia care provider
- Stop the continuous infusion if there is a safety concern or the woman has given birth

AWHONN

- Remove the catheter, if educational criteria have been met and institutional policy and law allow.
- Removal of the catheter by a RN is contingent upon receipt of a specific order from a qualified anesthesia or physician provider
- Initiate emergency therapeutic measures according to institutional policy and/or protocol if complications arise

Epidural



- Epidural catheter is inserted between the lumbar vertebral interspace between the dura and the spinal cord, a catheter is passed through the needle to the epidural space

Epidural Test Dose

- To prevent intravascular injection
- Test dose using Lidocaine with Epinephrine

Positive test dose:

- Rapid increase in maternal HR or SBP
- HR: ~20-30 BPM within 30-60 seconds
- SBP: ~15-25 mmhg with successive BPs

Epidural

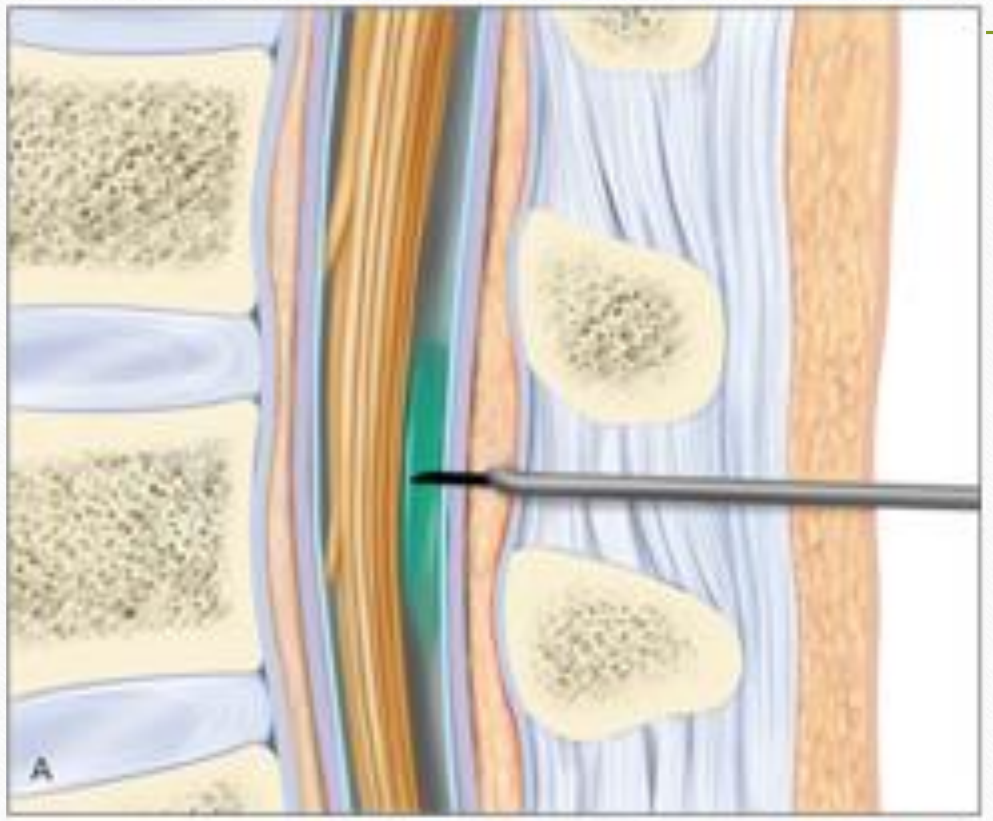
- Continuous infusion of Ropivacaine and Fentanyl via PCEA pump
- Basal rate: 8 – 12 ml/hr
- Bolus: 5ml

- Duramorph for post-operative analgesia for C/S prior to d/c of epidural catheter

Epidural

- https://www.youtube.com/watch?v=T_Wtc71_6hI

Spinal anesthesia

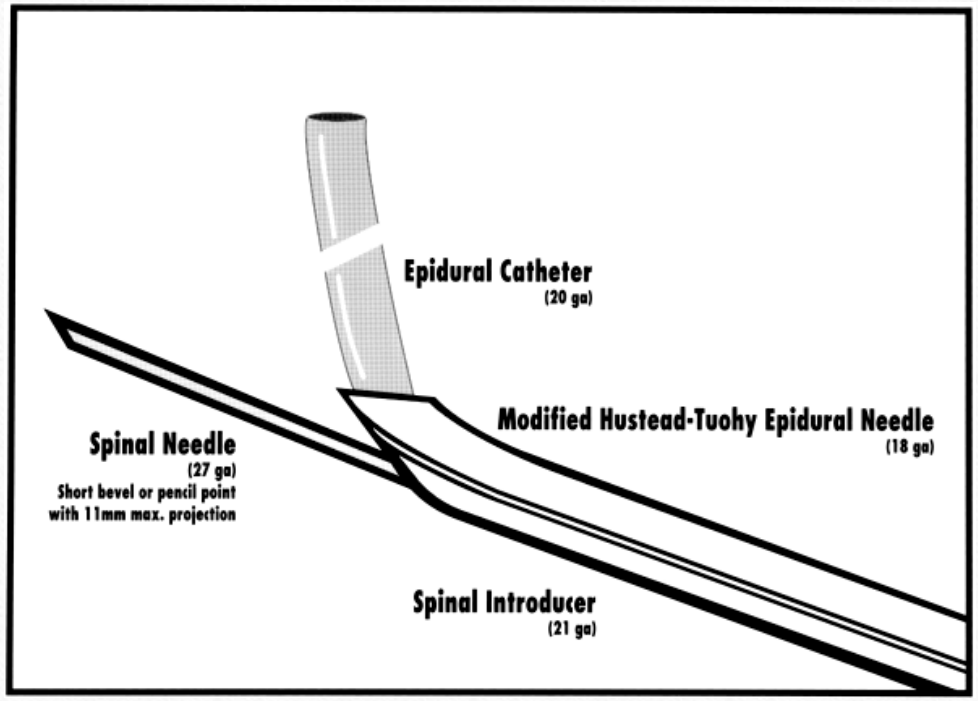


- Anesthetic injected into the subarachnoid space between the lumbar vertebral interspace
- Indicated for cesarean section, cerclage and BTL
- Meds: 0.75% Bupivacaine and Duramorph / Fentanyl

Spinal anesthesia

- https://www.youtube.com/watch?v=dHp7lGzwWxE

Combined spinal and epidural



- Insertion of the epidural needle into the epidural space, a thinner spinal needle then is inserted through the epidural needle to reach the subarachnoid space, anesthetic and/or opioids is then injected into the space, the spinal needle is then withdrawn and an epidural catheters is threaded through it.

Advantages of regional anesthesia

- COMPLETE PAIN RELIEF!!!!
- Avoids maternal or neonatal respiratory depression associated with IV opioids
- More comfortable with vaginal exams and position changes
- Anesthesia for C/S accomplished more rapidly

Disadvantages

- Possible prolong labor
- Pruritus
- Restricted to bed rest
- Fever
- Prolonged second stage of labor

Stages of labor

- First stage- active labor to complete dilatation.
- Second stage- complete dilatation to delivery.
- Third stage- delivery to delivery of placenta

Contraindications

- Patient refusal
- Allergy
- Local infection at area of insertion or severe systemic infection
- Coagulation defects
- Uncorrected hypovolemia

Nursing Management
Pre anesthesia

- Assessment of the pain level and desire for pain relief
- Continuous fetal heart rate monitoring and physical exam including baseline maternal vital signs and cervical exam.
- Type and screen per anesthesia.

Platelet Count

- Within six hours of procedure
- Platelet count =/> 100,000 g/dL

Low platelet count:

- Risk of hemorrhage → spinal hematoma→ cord compression → paraplegia

Preload vs Coload

- Preload- administration of 500-1000ml crystalloids fluids 30 min prior to procedure.
- Coload- administration of fluids during the procedure (usually seen with epidurals)

Preload vs Coload

- Importance of Coload
- IV crystalloids stays in the intravascular space for 20 min then it diffuses out
- Maintain cardiac output and utero-placental blood flow

Pre anesthesia

- Ensure availability of emergency equipment i.e. adult ambu bag, suction, and oxygen and drugs (ACLS, anesthesia cart, code cart)
- Provision of 1:1 nursing care, including patient positioning and monitoring

Procedure

- Obtain informed consent
- Time out: Pause for the cause
- Positioning- sitting up or lateral
- Provide reassurance to the patient
- Assessment and monitoring during the procedure
- Documentation

Post procedure

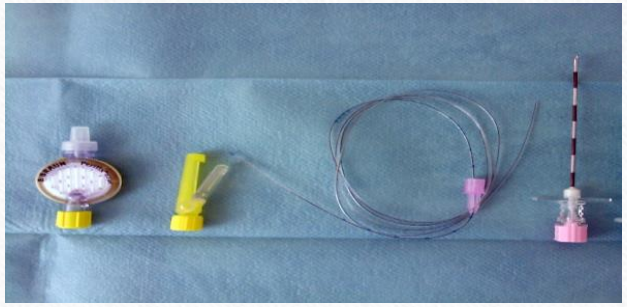
- Assess effectiveness of analgesia/anesthesia- pain score, one side more numb than the other, able to wiggle toes
- Assessment vital signs, fetal status, uterine activity
- Documentation

Supine Hypotension Syndrome

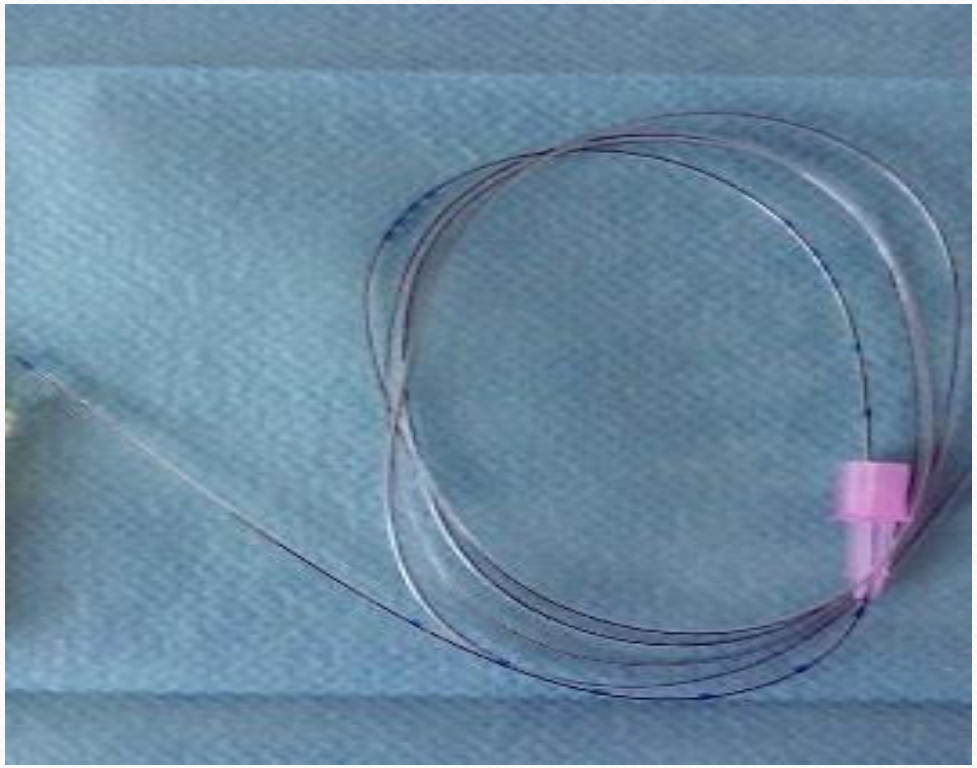
- Decrease BP associated with supine positioning→ compression of IVC & Aorta by gravid uterus
- Leads to non-reassuring fetal heart rate patterns
- Assist in positioning with left uterine displacement → relieve aortocaval compression

Post anesthesia care

- Verify order for d/c catheter and no scheduled BTL
- Removal of the epidural catheter.
- It should be easy without resistance, do not forcefully attempt to remove the catheter.
- May instruct patient to flex their back.
- May need to obtain an X-ray to check if the catheter is knotted or kinked.
- Surgical removal of catheter may be indicated.
- Documentation of intact catheter tip.
- Discharge from PACU when patient's condition is stable



Epidural Catheter Tip



Nursing Management of Adverse Effects

Pruritus

- Due to Fentanyl > Morphine
- Itching especially of the face and neck area.
- Assess severity of pruritus.
- Provide emotional/psychological support.
- Administer medications as needed (Benadryl/ Narcan)

Hypotension

- Vasodilation due to sympathetic nerve blockade
- Initial s/s nausea
- Hypotension > 20% drop in baseline
- Nonreassuring pattern on the fetal monitor
- Administration of crystalloid fluid bolus
- Administration of Ephedrine/ Phenylephrine
- Notify anesthesia.

Urinary Retention

- Urinary retention and bladder distention
- Foley catheter or straight catheterization

Maternal fever

- Due to decreased hyperventilation and heat dissipation/ sweating which occurs when pain is relieved
- Monitor hourly when ROM, q 4 hours otherwise

Management of Complications

Catheter Migration

- Epidural catheter can migrate
- Causing s/s of unilateral blockade, an intense motor block or intravascular injection
- Notify anesthesia

Postdural Puncture Headache (PDPH)

- Inadvertent dural puncture → leakage of CSF → spinal headache/ postdural headache
- Incidence as much as 70% to 80%
- Headache ↑↑ sitting/ standing and ↓ in supine position

Management of PDPH

- Conservative treatment includes:
- Provide psychological and emotional support
- Encourage bed rest
- Increase oral intake of fluids especially caffeinated beverages or IV hydration (up to three liters a day)
- Administer analgesics as ordered
- Inform anesthesia

Epidural Blood Patch

- The placement of autologous blood into epidural space → seal the dural tear
- Obtain consent; Time out/ Pause for the cause
- 20ml of blood from AC into epidural space
- Bedrest up to an hour after blood patch

High Spinal

- Inadvertent injection into dural space
- Cause fast/ intense motor block
- Inability to talk, respiratory distress → apnea, hypotension and unconsciousness to cardiac arrest

Intravascular Injection

- Assess for signs of local anesthetic toxicity
- Tinnitus, metallic taste in mouth, ringing in the ears
- Restlessness, seizure and sudden loss of consciousness and cardiac arrest.

Treatment

- Call for help and notify the anesthesia and obstetric care providers.
- Initiate emergency care procedures as needed.
- Protect the airway by Anesthesia
- Cardiovascular support/ ACLS
- 20% Intralipid for LA toxicity
- Prepare for emergent delivery

References

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