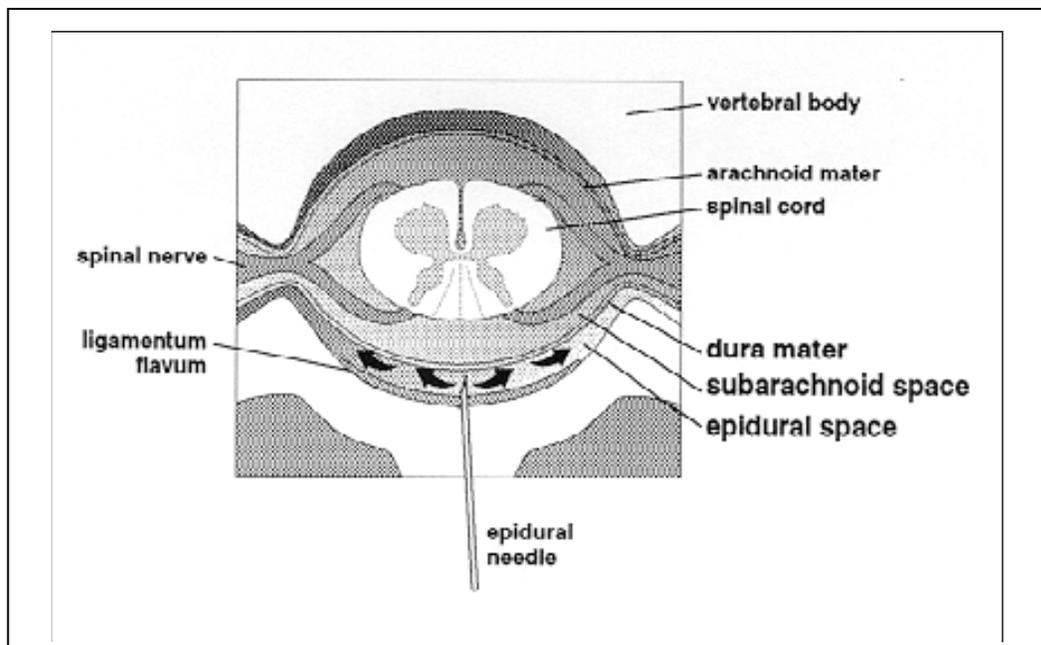


Epidural analgesia with local anesthetics, opioids, or alpha agonists alone, or in combination, can provide superior regional analgesia over conventional systemic routes (IV or PO) with minimal systemic side effects (nausea, sedation, constipation). Drugs administered epidurally are distributed by three main pathways, including:

- 1) diffusion through the dura into the CSF, then to the spinal cord or nerve roots;
- 2) vascular uptake by the vessels in the epidural space into systemic circulation; and
- 3) uptake by the fat in the epidural space; creating a drug depot from which the drug can eventually enter the CSF or the systemic circulation

Epidural analgesia can be administered in several ways: by intermittent boluses (by a clinician or by patient controlled epidural analgesia (PCEA) using an appropriate pump), continuous infusion, or a combination thereof. PCEA is often used to supplement a basal rate to allow a patient to manage incident pain related to postoperative recovery activities and helps meet individual analgesic requirements. Like IV PCA, PCEA can provide more timely pain relief, more control for the patient, and convenience for both the patient and nurse to reduce the time required to obtain and administer required supplemental boluses. **If local anesthetic is used, the lockout interval should be at least 15 minutes to allow for peak effect of the supplemental local anesthetic dose.**



Monitoring In contrast to drugs administered systemically, drugs administered in the epidural space are extremely potent because the drug is being delivered close to the site of action (opioid and alpha agonist receptors in the dorsal horn; local anesthetic blockade of nerve roots), therefore, frequent and ongoing assessment of pain relief, side effects, and signs or symptoms of technical complications (catheter dislodgement, epidural hematoma or abscess, pump malfunction, etc.) are necessary.

**Follow the Epidural and Intrathecal (Neuraxial) Analgesia policy
for assessment and documentation requirements**

Every hour for the first 24 hours, then every 4 hours, assess and document the following:

- Respiratory rate and sedation level, *preferably by the same nurse during each shift*

Every 4 hours while the epidural is in place

- Patient's pain rating using patient-specific pain scale (e.g. 0-10), both at rest and with activity
- Side effects such as pruritus, nausea, urinary retention, orthostatic hypotension, motor block

Every 8 hours while the epidural is in place

- Catheter insertion site for signs of infection or epidural abscess, e.g., back pain, tenderness, erythema, swelling, drainage, fever, malaise, neck stiffness, or motor block
- Any changes in sensory/motor function that may indicate an epidural hematoma including unexplained back pain, leg pain, bowel or bladder dysfunction, motor block

Selected References:

- Mann C et al. Postoperative patient-controlled analgesia in the elderly: risks and benefits of epidural versus intravenous administration. *Drugs & Aging* 2003;20(5):337-45.
- Antok E et al. Patient-controlled epidural analgesia versus continuous epidural infusion with ropivacaine for postoperative analgesia in children. *Anesthesia & Analgesia* 2003;97(6):1608-11.
- Pasero C, Eskterowicz N, Primeau M, Cowley c. Registered nurse management and monitoring of analgesia by catheter techniques: position statement. *Pain Mgmt Nurs* 2007;8(2):48-54.