



## Obstetric Anesthesia: Goals and Objectives

### Goals

1. CA 1 and 2 residents are assigned to the labor floor for 2 months to develop competency in the anesthetic management of obstetric cases including epidural analgesia for labor, intrathecal opioids for labor, anesthesia for routine and emergency cesarean section, and post-partum tubal ligation. Residents at this level are expected to competently manage mal-presentation diabetes, hypertension, pre-eclampsia, supine hypotension, and Rh and ABO incompatibilities within the scope of care. The ability to independently practice obstetric anesthesia in patients with commonly encountered pregnancy-related complications is the expected outcome of this rotation.
2. CA 3 residents may be assigned to Obstetric Anesthesia cases for 1 to 6 months to develop competency in the anesthetic management of *uncomplicated* and *complicated* obstetric cases including eclampsia, placenta previa, abruptio placenta, HELPP syndrome.
3. The ability to practice complicated cases and function in a leadership role as a consultant to the obstetrical care team is the expected outcome of this rotation.

### Objectives

#### Patient Care

- a) CA 1-2
  - (1) See all patients admitted to the labor floor
  - (2) Complete an anesthesia pre-op evaluation and obtain informed consent if possible
  - (3) Notify attending when a patient refuses to sign consent
  - (4) Discuss pre-op evaluations and anesthetic plan with attending and CA 3
  - (5) Initiate anesthetic plan independently but after notifying attending
  - (6) Manage anesthetic throughout the peri-partum period
  - (7) See patient before discharge from the labor floor
  - (8) Remove epidural or spinal catheter
  - (9) Complete post-anesthesia note (Date and time all notes)
  - (10) On weekends and holidays, make post-anesthesia rounds, complete post-op note and record cases in log book
  - (11) Perform an anesthetic machine check-out daily
  - (12) Place freshly mixed (with preservative-free saline) drugs in tamper evident packages and lock all drugs in carts when un-attended
    1. thiopental,
    2. succinylcholine,
    3. ephedrine
  - (13) Complete the following skills: 50% success rate expected during first month, 70% during 2nd month and 90% at CA 3 level. Epidural and spinal attempts must be completed in  $\leq 15$  minutes or 2 levels.
    1. Identify the epidural space with an epidural needle using loss of resistance technique in an anatomically normal parturient

2. Introduce spinal needle through epidural needle and administer intrathecal narcotics
3. Perform a spinal anesthetic for elective cesarean section
4. Use an epidural catheter to provide anesthesia for a post-partum tubal ligation

b) CA 3

- (1) Complete CA 1-2 objectives for Patient Care
- (2) Review cases with CA1-2 residents to determine completeness of assessment and plan
- (3) Identify and primarily manage high risk cases as consultant to High Risk Obstetric Fellow
- (4) Manage clinical activities on labor floor
  - (a) Assess daily workload
  - (b) Assign daily tasks and clinical duties
  - (c) Prioritize activities when necessary
  - (d) Assist CA1 and 2 residents when necessary
- (5) Assist in the management of post-partum patients requiring invasive monitoring or ventilation

## Medical Knowledge

a) Reading Assignments:

(1) **CA I and CAII list** (suggested reading)

- a. Physiologic Changes of Pregnancy - pg. 17
- b. Utero-placental Blood flow - pg 43
- c. The Placenta: Anatomy, Physiology, and Transfer of Drugs - pg.57
- d. Intra-partum Fetal Assessment and Therapy - pg.122
- e. Neonatal Assessment and Resuscitation - pg. 135
- f. Spinal, Epidural and Caudal Anesthesia: Anatomy, Physiology, and Technique - pg.187
- g. Local Anesthetics - pg. 209
- h. Obstetric Management of Labor and Vaginal Delivery - pg. 303
- i. The Pain of Childbirth and Its Effect on the Mother and Fetus - pg. 320
- j. Systemic Analgesia: Parenteral and Inhalational Agents - pg. 346
- k. Epidural and Spinal Analgesia/Anesthesia (three sections) - pg.360
- l. Anesthesia for Cesarean Section - pg. 465
- m. Anesthesia for Fetal Distress - pg. 493
- n. The Difficult Airway: Risk, Prophylaxis, and Management - pg. 590
- o. Postpartum Headache - pg. 621
- p. Neurologic Complications of Labor, Delivery, and Regional Anesthesia - pg. 693
- q. Ante-partum and Postpartum Hemorrhage - pg. 725
- r. Preterm Labor and Delivery - pg. 665
- s. Hypertensive Disorders - pg. 875

(b) **CA III and CA IV Reading List** (the above plus)

- a. "The Parturient with Systemic Disease"

- b. Autoimmune Disorders - pg. 765
- c. Cardiovascular Disease - pg. 776
- d. Endocrine Disorders - pg. 809
- e. Hematologic and Coagulation Disorders - pg. 842
- f. Human Immunodeficiency Virus - pg. 860
- g. Liver Disease - pg. 921
- h. Malignant Hyperthermia - pg. 932
- i. Musculoskeletal Disorders - pg. 944
- j. Neurologic and Neuromuscular Disease - pg. 963
- k. Obesity - pg. 986
- l. Renal Disease - pg. 1000
- m. Respiratory Disease - pg. 1011
- n. Substance Abuse - pg. 1027
- o. Trauma - pg. 1041

b) Oral Case Discussions

(1) Combined Spinal/Epidural for Labor: 24 y/o B female presents in labor, 3 cm dilated, 75% effaced, -2 station. Pregnancy is uncomplicated, patient is G1P0. She requests analgesia.

- a. You conduct an anesthesia interview. What is important to know?
- b. What anesthetic choices do you offer? Advantages or complications of each?
- c. Patient has a documented allergy to novocaine. Can you give her an anesthetic with local? If so, which ones?
- d. Patient agrees to a CSE. Which drugs do you use and why? Procedure and fluids?
- e. Ten minutes after placing the spinal drug, the patient has a fetal bradycardia. What do you do? What are the causes of this? Can it happen with a straight epidural?
- f. The spinal drug works for about 90 minutes and now the patient is requesting additional analgesia. What do you give her and how do you dose the catheter?
- g. The patient feels pain in the middle of her abdomen but low down towards the vagina about 4 hours after you have made her comfortable with the epidural. How do you handle this?
- h. The patient is requesting additional analgesia since her right side is hurting but the left is okay. What do you do?
- i. The patient is uncomfortable and delivers without problem. You go to sign her out, but you unable to remove the epidural catheter. What do you do?

(b) Epidural for labor: 28 y/o W female. G4P3003, presents at 30 weeks gestation with a BP of 190/110, +4 proteinuria, and mild RUQ pain. A diagnosis of severe pre-eclampsia is made, and her labor is induced with pitocin. She has been loaded with magnesium sulfate and now requests analgesia.

- a. Why was the patient started on magnesium? What does it do? What complications might you entertain?

- b. The patient requests analgesia, but refuses a "spinal" since with her last two deliveries she had a severe spinal headache from a CSE analgesic. What do you tell her?
  - c. You are asked to place a straight epidural for analgesia. Is there anything you want to know first?
  - d. You place the epidural without problem. How do you dose it? Explain in detail.
  - e. The labor is long and you have been required to give "top up" doses of analgesia to the patient with increasing frequency. What might the problem be? How do you handle this?
  - f. The patient has been pushing for 3 hours and the obstetrician wish to apply forceps. They ask you for additional analgesia. What do you give and how much?
  - g. The patient finally delivers by forceps but you have noted that with the last two platelet counts (q 4 hours) the number is dropping. You are asked to pull out the epidural catheter and sign the patient out to the floor. Anything wrong with this request? What do you do?
- (c) Cesarean Section for failure to progress: A 32 y/o B female, G2P1001, is attempting to VBAC. She has a good working epidural during her labor, but has not dilated beyond 6 cm. The obstetrician is calling for a cesarean section.
- a. How long from time of calling a cesarean section until delivery of the baby do you have - according to ACOG guidelines?
  - b. How will you dose the epidural for the cesarean section? What drugs do you use and how do you give them?
  - c. You take the patient to the OR. Name each step you follow until ready to have the obstetrician prep the abdomen.
  - d. You check a level for the cesarean section and it appears "okay" by "pin prick". How do you reliably check a level? The "clamp" test by the obstetrician is okay, but after incision the patient complains of "too much pressure". What do you do?
  - e. Explain what you record and do at delivery of the infant.
  - f. After delivery of the baby, the obstetrician asks you to give pitocin 10u IV push. What do you do?
  - g. After delivery of the baby, the obstetrician exteriorizes the uterus and suddenly the patient complains of SOB and becomes tachycardic. What may have happened? What do you do?
  - h. The mother asks for more anesthesia after delivery, but denies pain, just states she is very uncomfortable. Can you sedate her and what do you give? If she was complaining of pain but her epidural level is at T2, what can you do?
- (d) STAT Cesarean Section Case: A 25 y/o W female, G1P0, presents in the prep room in labor with a prolapsed umbilical cord. She has eaten a full meal at Wendy's two hours ago. She has a mild history of asthma and although she is not wheezing currently, she has used her inhaler just yesterday. She admits to cocaine use 4 hours ago. She is 240 lbs, 5'2", the airway is good. The obstetrician calls a STAT cesarean section.
- a. Do you try a regional anesthetic on this patient? The obstetrician says that the FHR is down and there is no time for a spinal. Go through exactly

what you would do until you are ready to induce the patient for a general anesthetic.

- b. What induction agent will you use? Why? The obstetrician says that he hears ketamine is good for asthmatics, will you try it?
  - c. After pushing drugs you do a DL, but cannot get the ETT in. The patient's saturation is starting to drop. What do you do?
  - d. The patient is easily ventilated, but a second attempt at intubation fails. What are your options now? Do you allow the obstetrician to start the cesarean section if the FHR is back up? Does your decision change if the FHR is still below 100?
  - e. You finally intubate the patient and the baby is delivered. How do you change the anesthetic? The uterus is bleeding profusely and appears hypotonic even after 60 units pitocin in the IV bag. The obstetrician asks for hemabate. How do you respond? Anything else to suggest? The obstetrician looks over and sees that you have 0.3% isoflurane still on. What do you say?
  - f. At the end of the cesarean section the obstetrician asks you to place an NG tube since the patient has a very "full" stomach and may vomit. How do you respond?
  - g. How do you approach post-operative analgesia for this patient? Would your answer change if she had been taking methadone preop?
- (e) PPTL Case: A 35 y/o P5 patient requests a PPTL. She delivered her baby yesterday and has been NPO overnight, but has no current analgesia.
- a. What anesthetics do offer this patient? She wants to go to sleep for the procedure. What do you tell her?
  - b. Finally the patient agrees to spinal anesthesia. What drug do you use and how much? Could you use hyperbaric lidocaine? (after all it wears off more quickly) Do you give spinal duramorph?
  - c. The spinal is in and upon incision the patient feels pain but her block is at T4. What do you suggest?
  - d. After incision she is more comfortable, but requests sedation. What can you offer her?
  - e. The spinal appears to be inadequate for the procedure but incision has already been made. What do you do?
  - f. If this were an "immediate" PPTL (just after delivery) being done under regional anesthesia, and the block were inadequate prior to incision, what would you do? Is general anesthesia a viable option?
  - g. Prior to the procedure, the patient's hemoglobin is 7.0. Do you proceed? The patient states that she will not return in 6 weeks for a tubal ligation if you do not do it now. What do you tell her?

## 2. Teaching Responsibilities

### 3. Prepare and deliver one 30 minute lecture from the following topics

- a. Physiology of pregnancy
- b. Pain and pain pathways
- c. Labor analgesia

### 4. CA 3 residents review chapters from an Obstetric Anesthesia text

## **Interpersonal and Communication Skills**

- (1) Establish and maintain professional relationships with the obstetrical patients, their families and the delivery room staff involved with their care.
- (2) Identify the special needs of communicating with patients having labor pain
- (3) Identify the special needs of obstetrical patients and their newborn baby.

## **Practice-Based learning and Improvement**

- (1) Describe an evidenced-based approach to using platelet count as an exclusion criteria for epidural or spinal anesthesia
- (2) Justify your choice of spinal needle as related to the incidence of post-lumbar puncture headache based on the results of a literature review
- (3) Self-monitor the effectiveness of your technique of epidural placement and make adjustments in technique to improve success rate

## **2) Professionalism**

- (1) Maintain focus on patient care activities during stressful times
- (2) Maintain honesty and respect for patients and their families at all times
- (3) Reliably maintain epidural carts and set-up the delivery room OR's on daily basis
- (4) Accept responsibility for errors in judgment

## **3) Systems-based Practice**

- (1) Explain your role in relation to other members of the cardiac care team in the OR
- (2) Record all anesthetics in the log book
- (3) Inventory workroom supplies and order as needed
- (4) Sign-out rounds with night call resident