Obstetric Anesthesia Pocket Guide

**Physiology of Pregnancy**

- **CV**
  - 1-CD 30-50%, S-D 4-5%, Highest CO immediately postpartum
  - Mean arterial pressure: 40-50 mm Hg
  - Systolic BP: 90-110 mm Hg
  - Diastolic BP: 60-70 mm Hg

- **Pulm**
  - MV: 3.5 to 5 L/min
  - CO2 consumption: 1-20% higher than that of normal men

- **Renal**
  - GFR ≈ 110-125 mL/m²•min
  - Urine output: 1000-1500 mL/day

- **Placenta**

**Acronyms**

- **TPAL**
- **O & P**
- **AROM**
- **IOL**

**Acromes**

- **HELLP**
- **Beta Complete**
- **PPS/TL**
- **PPROM**
- **SROM**
- **AROM**
- **IOL**

**Contraindications**

- **A = Abortions/Miscarriages**
- **X = # Pregnancies**

**Shedding**: Blood loss

**Other Issues and Consequences**

- Maternal fatigue and stress
- Gestational hypertension
- Severe features: BP ≥ 140/100 mm Hg

**Maternal Complications**

- Pre-eclampsia: Proteinuria and hypertension
- Gestational hypertension: Proteinuria and hypertension

**Neural Risks & Contraindications**

**Risks**

- 1:1000 intrauterine anaphylactic anaphylaxis (≥15 wks of gestation)
- 1:1000 emesis
- 1:1000 allergic reaction (lasting beyond 1 month)

**Effect of anesthetics on labor**

- No good historical data on labor before complete study on late etallopalm, L13:51.9
- If patient shows signs of labor, begin analgesia immediately
- No increase in rate of instrumental deliveries or cesarean sections

**Contraindications**

- Intrauterine growth restriction, antepartum hemorrhage, fetal distress
- Any increase in rate of induced deliveries or cesarean section

**PDPH Management**

- Check BP to see if necessary, using mean arterial pressure
- Consider fentanyl, IV bolus of 1-2 mg, or hydromorphone, 2-4 mg, IV push追加
- All pts in the acute phase from placental abruption

**Anesthesia**

- SAD, regional, GA
- Larger duration of distribution
- Use of epidural catheter
- Use of a uterine tone
- Local anesthetic

**Hyperoxygenation**

- No maternal complications
- No increased rate of instrumented deliveries or c-section with epidural

**CSE combined spinal-epidural**

- Bauph (subq) 0.5-1 mg/KG/3-10-15 mg bupiv (< 10 kg)

**Labor Analgesia**

- **Nonpharmacologic**
  - Breathing techniques, ambulation, water birth
- **Regional**
  - **Rami-**
  - **fentan**
  - **PCA**

**Pharmacologic**

- **N2O**
  - **AA** nitrous oxide, 100/50% (30-60 min)
  - **N2O** fentanyl: 45-65 mcg bolus, 3-5 mcg/min (not to exceed 4 mcg/min)
  - **N2O** oxycodone: 30-50 mcg bolus, 5 mcg/min (not to exceed 10 mcg/min)

**Labor Analgesia (continued)**

- Typically reserved for patients requiring nutritional contradictions
- **N2O** 45 mg/kg or 0.06 mg/kg blood loss (45%)

**Postpartum**

- **Pharmacologic**
  - **N2O** oxycodone: 30-50 mcg bolus, 5 mcg/min (not to exceed 10 mcg/min)
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**Neuromuscular Agents**

- **Dexmedetomidine**
  - **Dex 1.25-2 mcg/kg bolus, 0.5 mcg/kg/min (not to exceed 0.7 mg/min**

**Bupivacaine**

- Subject to blood loss
- 0.5% mepivacaine: 1 mL/kg/hour
- Consider fentanyl for pain relief

**C-Section Surgery**

- **Spinal**

- **Low-risk**

- **Pharmacologic**

- **Pitocin**

- **High-risk**

- **Obstetric**

**Reproductive Triggers for Labor**

- More expectations w/ ID
c - fetal weight over
- Consider cesarean in hypertensive partum
- Consider cesarean for maternal indications
- Consider cesarean for fetal indications
- Consider cesarean for maternal indications
- Consider cesarean for fetal indications
- Consider cesarean for maternal indications

**Exam Procedure**

- Use of epidural catheter
- IV access above diaphragm
- RSI/cricoid if ETT needed
- No increased rate of instrumented deliveries or c-section with epidural

**Postpartum**

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**Elective C-Section - Neuroaxial Anesthesia**

Goal: Achieve lowest level of anesthesia

- Local: 1% lidocaine
- Regional: 0.5% bupivacaine
- Spinal: 0.5-0.75% hyperbaric bupivacaine
- Epidural: 0.125-0.175% bupivacaine

- 10-15 mL 0.5-0.75% hyperbaric bupivacaine
- 10-15 mL 0.125% bupivacaine

- Consider: ADD 15 mL ropivacaine 0.125% + 2.5 mcg epinephrine

**Neuraxial Troubleshooting for C-Section**

- 1. If technique succeed from now on, replace epidural +/-
- 2. If patient becomes asymptomatic, consider turning epidural off
- 3. Consider ADD 15 mL ropivacaine 0.125% + 2.5 mcg epinephrine
- 4. Reduce drug or use dilution, +/−NMB

**Side Effects During C-Section**

**Intraspinal (IV)**

- **Dural tears are uncommon in patient with scoliosis**
- **Subarachnoid block**
- **Caudal:** Epidural catheter may drift cephalad or caudad
- **Lumbar:** Epidural catheter may drift cephalad or caudad

**Continuous Spinal**

- **10-15 mL 0.125% bupivacaine + 2.5 mcg epinephrine**
- **10 mL 0.5% hyperbaric bupivacaine**

**Shunting**

- For contralateral post delivery, use 10 mL 0.125% +/−0.5 mL

**Baseline**

- Nausea and vomiting
- Headache
- Hypertension
- PRX: NTV 2 mg/24 hrs

**Miscellaneous Techniques**

- **To prevent hypotension:**
  - Propofol (0.5-1 mg/kg)
  - Rocuronium (200 mg)

**Urgent/Emegent C-Section/Neuroaxial Anesthesia**

As above for Elective. Caution if recently bolused epidural (high spinal risk)

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**Clinical Trigger: Vaginal > 500 mL, C-section > 1000 mL**

**Fetal Heart Rate Monitoring**

**Early Deceleration**

<table>
<thead>
<tr>
<th>Category</th>
<th>FHR Criteria</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1</td>
<td>HR 110-160 bpm, moderate variability (60 bpm, peak to peak &gt;15 mm/s)</td>
<td>Caffeine ≤ 15 mg IV, uterine activity</td>
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