# Spinal Anesthesia

## YOU SHOULD BE ABLE TO

- ✓ Predict block height from baricity, position, dose, and CSF volume
- ✓ Choose and dose the right intrathecal drug and adjunct for the case
- ✓ Recognize and treat high spinal, PDPH, TNS, and cauda equina syndrome

## THE LESSON ON ONE PAGE

### Anatomy and who

- Cord ends L1 to L2; sac S2
- Tuffier's line L4 or L4-L5
- Absolute: refusal, site infection, raised ICP, coagulopathy
- Aspirin alone is fine

### Spread

- Big three: baricity, position, dose
- Less CSF = higher block
- Supine: high L3 to L4, low T6 to T8
- Not: weight, sex, epi, barbotage

### Drugs

- Bupivacaine 0.75% heavy: 7.5 mg/mL
- Chloroprocaine 1%: 50 mg, under 40 min
- Lidocaine: TNS risk
- Fentanyl 10 to 25 mcg; morphine 50 to 150 mcg

### Complications

- High spinal: grip, voice, apnea
- Bradycardia: T1 to T4, Bezold-Jarisch
- PDPH: positional; patch 15 to 20 mL
- TNS pain vs cauda equina deficit

## KEY TABLES

**Baricity and the curve**

| TYPE | EXAMPLE | MOVES | USE IT FOR |
|---|---|---|---|
| **Hyperbaric** | Bupivacaine 0.75% in 8.25% dextrose | Down, to dependent areas | Most spinals; saddle block sitting |
| **Isobaric** | Plain bupivacaine 0.5% | Stays near injection | Hip and knee; position less important |
| **Hypobaric** | Local anesthetic diluted in sterile water | Up, to nondependent areas | Prone jackknife; hip with operative side up |

## BOARD TRAPS

**"Double the volume, double the spread."**

**Not quite.** For a given **total dose in mg**, changing volume or concentration adds little. Dose is what the exam wants.

**"Total spinal apnea comes from phrenic nerve block."**

**Mostly false.** Apnea is chiefly **brainstem hypoperfusion** from profound hypotension. Restoring blood pressure often restores breathing, but you still ventilate.

**"Sit them up to stop a high spinal."**

**False.** Head-up pools blood in the legs and worsens hypotension and brainstem perfusion. Treat airway, breathing and circulation; raise the legs.

**Buttock pain after a lidocaine spinal: cauda equina or TNS?**

**TNS**

is pain with a normal neurologic exam. **Cauda equina** has deficits: saddle anesthesia, weakness, bowel or bladder dysfunction. Look for the deficit.

## MEMORY DEVICES

Spread of a spinal

### BPD spreads it. WEBS don't.

- **B** Baricity: heavy sinks, light floats
- **P** Position during and right after injection
- **D** Dose in milligrams (then less CSF pushes it higher)
- **W** Weight: no reliable effect
- **E** Epinephrine: longer, not higher
- **B** Barbotage: no reliable effect
- **S** Sex: no effect

Differential block height

### Sympathetic, Sensory, Motor: 2 apart

1. Highest: about 2 segments above sensory, often more
2. Middle: pinprick and cold
3. Lowest: about 2 segments below sensory