

PUZZLE
1138 - PRINCIPLES OF ANESTHESIA 1
UNIT III – BASIC ANAESTHETIC TECHNIQUES

Spinal Anesthesia Logic Puzzle: Optimal Drug Selection for Cesarean Section

Scenario:

Total marks: 10 marks

An anesthesiologist is performing spinal anesthesia for an urgent cesarean section on a 30-year-old primigravida at 38 weeks gestation. The patient weighs 70 kg, has no comorbidities, and requires rapid surgical anesthesia with minimal hemodynamic instability. Available intrathecal options include hyperbaric bupivacaine, plain bupivacaine, ropivacaine, and fentanyl as adjuvant. The OR team needs dense T4-level block within 5 minutes, lasting 90 minutes, with quick motor recovery postpartum.

Clues:

1. Hyperbaric bupivacaine provides reliable predictable spread to T4 when injected in sitting position, ideal for cesarean.
2. Plain (isobaric) bupivacaine risks uneven spread and sacral sparing, less suitable for upper abdominal surgery.
3. Ropivacaine offers less motor blockade than bupivacaine but slower onset and less dense sensory block for surgery.
4. Fentanyl (10-15 mcg) as adjuvant enhances sensory block, reduces bupivacaine dose, and improves hemodynamic stability.
5. For rapid onset in urgent cesarean, total dose should be 10-12 mg bupivacaine equivalent; higher risks hypotension.
6. Sitting position injection favors cephalad spread with hyperbaric solutions, avoiding excessive high block in supine parturient.

Question: Which local anesthetic and adjuvant should be selected, including dose and patient position, to achieve optimal block?

Rubrics

Criterion	Points
Key Elements	2 pts
Logical Steps	4 pts
Correct Solution	2 pts
Clinical Insight	2 pts
Total	10 pts