

PUZZLE
1138 - PRINCIPLES OF ANESTHESIA 1
UNIT V – INTRAOPERATIVE AND POST OPERATIVE COMPLICATIONS
PONV Logic Puzzle: Risk-Based Prophylaxis Selection

Scenario:

Total marks: 10 marks

A 45-year-old female undergoes laparoscopic cholecystectomy under general anesthesia. She has a history of motion sickness and previous PONV after surgery. The anesthesiologist must select optimal multimodal prophylaxis to minimize postoperative nausea and vomiting (PONV) risk, using Apfel score and evidence-based agents. Available options: dexamethasone, ondansetron, droperidol, scopolamine patch, and TIVA with propofol. Goal: Reduce baseline 10% risk to <10% with minimal side effects.

Clues:

1. Apfel risk factors (female, non-smoker, history PONV/motion sickness, opioids) give her 4/4 score = 80% baseline PONV risk.
2. Multimodal therapy (2+ antiemetics from different classes) reduces risk by 25-30% more than single agent.
3. Dexamethasone 4-8 mg IV at induction is first-line, cost-effective, effective up to 24 hours, but avoid in infection risk.
4. Ondansetron 4 mg IV (5-HT₃ antagonist) effective for early PONV but less so for delayed; TIVA with propofol reduces overall risk by 50%.
5. Droperidol effective but FDA black box for QT prolongation; scopolamine better for motion sickness but causes sedation/dry mouth.
6. For high-risk laparoscopic surgery, combine glucocorticoid + 5-HT₃ antagonist + minimize opioids; TIVA ideal if feasible.

Question: What is the optimal PONV prophylaxis regimen for this patient, and why does it target her risk profile?

Rubrics

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