

Introduction to Anaesthesia Complications

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Designed as a quick-reference guide for students, trainees, and clinicians.

1. Why Study Anaesthesia Complications?

Reason	Clinical Impact
Patient safety	Reduces morbidity and mortality
Legal & ethical responsibility	Informs consent and documentation
Quality improvement	Guides protocol development and monitoring
Team communication	Enhances intra-operative vigilance

2. Classification of Complications

Category	Timing	Typical Examples
Pre-induction	Before drug administration	Difficult airway, severe hypovolemia, uncontrolled hypertension
Induction	During loss of consciousness	Hypotension, bronchospasm, aspiration, malignant hyperthermia
Maintenance	Throughout surgery	Awareness, drug toxicity, arrhythmias, temperature dysregulation
Emergence	Extubation & immediate recovery	Laryngospasm, nausea/vomiting, delirium, residual neuromuscular blockade
Post-operative (PACU/ward)	Hours to days after surgery	Respiratory depression, wound infection, cardiovascular events, postoperative cognitive dysfunction (POCD)

3. Common System-Specific Complications

3.1 Cardiovascular

Complication	Typical Triggers	Early Signs	Immediate Management
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Hypotension	Induction agents, neuraxial block, hypovolemia	? MAP, tachycardia, pallor	Fluid bolus, vasopressors (phenylephrine, ephedrine)
Hypertension	Pain, inadequate depth, catecholamine surge	? BP, tachycardia	Deepen anaesthesia, ?? blocker, vasodilator
Arrhythmias	Electrolyte imbalance, drug toxicity	Irregular pulse, ECG changes	Treat underlying cause, anti-arrhythmics (e.g., lidocaine)
Myocardial Ischemia	Stress, tachycardia, hypotension	ST changes, chest pain (if awake)	Optimize oxygen delivery, ?? blocker, nitrates

3.2 Respiratory

Complication	Typical Triggers	Early Signs	Immediate Management
Airway obstruction	Difficult mask ventilation, laryngospasm	Stridor, desaturation	100% O ₂ , jaw thrust, CPAP, succinylcholine if needed
Aspiration	Inadequate fasting, reflux	Cough, wheeze, ? SpO ₂	Suction, bronchoscopy if required, antibiotics
Bronchospasm	Asthma, irritant gases	Wheeze, ? peak pressure	?? agonist inhalation, deepen anaesthesia
Respiratory depression	Opioids, residual neuromuscular block	Hypoventilation, ? CO ₂	Reduce opioid, reverse NM blockade, assist ventilation

3.3 Neurologic

Complication	Typical Triggers	Early Signs	Immediate Management
Awareness (intra-operative awareness)	Light anaesthesia, high tolerance	Patient recall, movement	Verify depth (BIS, EEG), adjust agents
Seizure	Local anesthetic toxicity, propofol infusion	Motor activity, EEG changes	Stop offending drug, benzodiazepine, correct electrolytes
Stroke / TIA	Hemodynamic instability,		