

ANAESTHESIOLOGY — M D

1ST YEAR THEORY

a) Anatomy – Diaphragm, larynx and upper and lower airway, anatomy for regional anaesthesia and venous cannulations. Orbit of the Eye, Base of skull, Vertebral Column, spinal cord, meninges, axilla, 1st rib, Intercostal space.

b) Principles of physics and use of equipment in anaesthesia

i) Anaesthesia machine - checking and assembly of necessary items.

ii) Airway equipments - mask, LMA, endotracheal tubes, fiberoptic laryngoscopes; other devices like Combi tube etc.

iii) Breathing systems - Assembly and checking.

iv) Monitoring in Anaesthesia with concepts of minimal monitoring.

v) Safety in Anaesthesia Equipments.

vi) Medical gases - storage and central pipeline system.

c) Physiology:- Theories of mechanism of production of Anaesthesia. Respiratory, cardiovascular, hepatobiliary, renal and endocrine system. Pregnancy, Blood Groups, Muscle & N M Junction, ECG, Regulation of temperature & Metabolism, Stress response, cerebral blood flow and ICP.

d) Pharmacology:- General pharmacological principles. Concepts of pharmacokinetics and pharmacodynamics, Uptake and distribution of inhaled anaesthesia agents, Drug interaction in Anaesthesiology. Drugs used in Anaesthesia, Drugs used for treatment of diseases and interactions.

e) Theoretical background of the commonly used anaesthetic techniques of general and regional anaesthesia viz. GA - Intravenous, Inhalational, Endotracheal etc. using spontaneous and controlled mode of ventilation. Regional Anaesthesia - Spinal, epidural, CSEA, and local.

f) Biochemistry relevant to fluid balance & Blood Transfusions & Perioperative fluid therapy. Acid base homeostasis in health and diseases.

g) Documentation.

h) Theoretical background on disorders of: CVS, Respiratory, Hepatobiliary, excretory, endocrine, pregnancy and others.

i) Cardio-pulmonary Cerebral Resuscitation; Theories of cardiac pump, and defibrillation. Resuscitation of a patient with poisoning. Resuscitation of a severely injured patient. Neonatal resuscitation.

j) Preoperative assessments and medication - general principals.

k) Pain: Introduction to anatomical, physiological, pharmacological and biochemical aspects of pain & pain management.

l) Introduction to artificial ventilation.

m) Oxygen therapy

n) Introduction to the operation theatre, recovery rooms (concepts of PACU), ICU.

o) Recovery from anaesthesia.

p) Shock - Pathophysiology, clinical diagnosis and management.

q) Pulmonary function tests - principles and applications.

r) Effect of positioning.

2ND YEAR THEORY

a) Relevant anatomy of each system

b) Physics of equipment used in anaesthesia. Medical gases - gas plant, central pipeline Scavenging system.

Reducing valves, Anaesthesia machine, Humidifiers Flow meters Vaporizers - Characteristics and functional specifications.

Breathing systems - Assembly, functional analysis, flow, Minimum monitoring standards requirements, APL and flow directional valves.

c) Sterilization of equipment.

d) Computers, Utility, computer assisted learning and data storage. Computerised anaesthesia records.

e) Pharmacology of drugs used in cardiovascular, respiratory endocrine, renal diseases and CNS disorders.

f) Acid-base and electrolyte balance and interpretation of blood gases and other relevant biochemical values, various function tests and basics of measurement techniques,

g) Principles of monitoring equipment used for assessment of-Cardiac function viz. Rhythm, pulse, venous and arterial pressures, cardiac output, ECG, Temperature, Respiratory function viz., Rate volumes, compliance, resistance, blood gases.

Intracranial pressure, depth of anaesthesia and Neuromuscular block.

h) Working principles of ventilators.

i) Special anaesthetic techniques as relevant to outpatient anaesthesia, hypotensive anaesthesia, anaesthesia in abnormal environments and calamitous situations.

j) special situations - Emergency, ENT, Ophthalmology, Obstetrics, Obstetric analgesia, Plastic, Dental, Radio- diagnosis and Radiotherapeutic procedures and patients with systemic diseases.

k) Medical statistics relevant to data collection, analysis, comparison and estimation of significance.

l) Journal clubs.

m) Paediatrics – Prematurity, Physiology, anatomy of neonate

1. Principles of paediatric anaesthesia. management of neonatal surgical emergencies, RA in infants.

2. Associated medical disorders in surgical patients - anaesthesia implications and management.

3. Basics of orthopaedic anaesthesia.

4. Day care anaesthesia.

5. Rural anaesthesia - anaesthesia for camp surgery.

6. Anaesthesia for ENT surgeries with special emphasis on difficult airway management.
7. Blood and blood component therapy. Anaesthetic implications in coagulation disorders.
8. Monitored anaesthesia care.
9. Anaesthetic implication in DM, thyroid and parathyroid disorders, pheochromocytoma, cushings disease etc.
10. Management of acid-base disorders
11. Principles of geriatric anaesthesia
12. Anaesthesia outside the OR and in special situation. Principle of management in Trauma, disorders and mass casualties

3RD YEAR THEORY

a) Anaesthesia for patients with severe cardiac, respiratory, renal and hepatobiliary disorders posted for unrelated surgery.

b) Management of patients in shock, renal failure, critically ill and/or on ventilator.

c) Chronic pain therapy and therapeutic nerve blocks.

d) Maintenance and sterilization of anaesthesia and related equipment.

1. Principles of anaesthetic management of neuro/ thoracic / vascular/ Transplantation/ burn and plastic surgery.
2. Principles of neonatal ventilation and critical care.
3. Principles of human resources and material management.
4. General principles of medical audit
5. Principles of one lung anaesthesia

SKILL DEVELOPMENT

It is felt that at the end of a 3-year training course from our institute a candidate should have the knowledge and ability to:

1. Plan & conduct of anaesthesia, recovery, and postoperative pain relief for elective and emergency surgery related to all surgical specialties.
2. Carry out basic life support (BLS) and advanced life support (ALS) and train medical and paramedical staff in BLS and ALS.
3. Manage patients admitted to an intensive care unit.
4. Manage patients suffering from chronic intractable pain.
5. Critically review and acquire relevant knowledge from the journals about the new development in the speciality.
6. Should be able to participate in anesthesia audit & conferences.