

CIRICULUM FOR PHD ANESTHESIA

Theme 1: Basic sciences

- a. Anatomy related to cardiovascular system, respiratory system, central nervous system, sympathetic and parasympathetic nervous system, regional anatomy.
- b. Physiology related to cardiovascular system, respiratory system, central nervous system, sympathetic and parasympathetic nervous system, neuromuscular junction.
- c. Biochemistry related to fluid therapy, various function tests related to systems e.g. LFT, KFT and basics of measurement techniques to evaluate the functional status of organ systems and Concept of cytokines, and other enzymes.
- d. Pharmacology related to general principles, concepts of pharmacokinetics and pharmacodynamics of intravenous, inhalational, neuromuscular blocking drugs and local anesthetics, Drug interactions in anaesthesiology.
- e. Physics related to anesthesia machine and equipments.
- f. History related to anesthesia.
- g. Basic research methodology and clinical trials.
- h. Medical education including evidence based medical education.
- i. Hazards and safety in anesthesia.

Theme 2: Anaesthesia in relation to associated systemic and medical diseases

- a. BLS/ ACLS.
- b. Theoretical background of the commonly used anaesthetic techniques.
- c. Complications of anaesthetic procedures.
- d. Perioperative anaesthesia management including pre-operative evaluation, intraoperative management as well as postoperative management.
- e. Theory and practice of various anaesthesia techniques and postures required for anaesthetic/surgical procedures of Routine & Emergency cases.
- f. Anesthesia for pediatric patients.

- g. Anesthesia for geriatric patients.
- h. Anesthesia for obstetric patients.
- i. Immune response and anaesthesia.

Theme 3: Anesthesia in relation to subspecialties

- a. Anesthesia related to dental and oromaxillofacial surgeries.
- b. Anesthesia related to otolaryngeal surgeries.
- c. Anesthesia related to ophthalmic surgeries.
- d. Endoscopies / laparoscopies Anaesthetic management, specific requirement and complications.
- e. Special anaesthetic techniques as relevant to Outpatient anaesthesia, Remote Location Anaesthesia; Anaesthetic practice during disasters and for large turnover surgeries in camps / mass casualties.
- f. Anaesthesia for various diagnostic, therapeutic and specialized procedures like Labour analgesia, Electroconvulsive shock therapy (ECT), Electrophysiologic tests, Radiofrequency ablation, Cardioversion, Special anaesthetic considerations in radiology and interventional radiology related to Dye allergies, Embolization, monitoring / Equipment options in the MRI suite.
- g. Anaesthesia for Laser Surgery.
- h. Anaesthesia for Robotic Surgery.

Theme 4: Anesthesia related to superspecialities

- a. Urology Management of endoscopic surgeries like TURP/TURBT, Problems related to TURP, extracorporeal shock wave lithotripsy, percutaneous placement of nephrostomy, anaesthetic management of patients with acute and chronic renal failure.
- b. Plastic Management of burns contractures, congenital faciomaxillary abnormalities like cleft lip and palate, faciomaxillary injuries like fracture mandible, maxilla, zygoma, panfacial fractures, difficult intubations, microvascular surgeries, reconstructive surgeries, aesthetic surgeries.

- c. Management of head injuries, bleeds, tumours with raised ICT and management of cases in sitting, prone, lateral, jack-knife positions and anaesthetic management for neuroradiology procedures.
- d. Anesthetic management of Cardiac, Vascular & Thoracic Conduct of closed heart as well as open heart surgeries (Valvular, Ischemic, Congenital - Cyanotic & Acyanotic), CABG (including off pump).
- e. Anesthesia in relation to transplant surgery.

Theme 5: Intensive Care and Pain Medicine

- a. Clinical signs associated with critical illness, their relative importance and interpretation.
- b. Recognition of life threatening changes in physiological parameters.
- c. Oxygen therapy.
- d. Treatment algorithms for common medical emergencies.
- e. Interpretation of chest radiographs, CT scan and other common radiological imaging modalities.
- f. Establishment, management and interpretation of vital organ functions, Hemodynamic monitoring with arterial, central venous and pulmonary artery catheters.
- g. Introduction to pain (anatomy and physiology), types and classifications.
- h. Specific pain history, interpreting relevant investigations, formulating a management plan & evaluating outcome.
- i. Various Pain scales and scores.
- j. Pharmacology and route of administration of various drugs for management of pain.
- k. Palliative Care, Rehabilitation, end of life issues, Hospices management & do not resuscitate orders.