

# PDCC

## SYLLABUS

### I. BASIC SCIENCES

#### ANATOMY

Surface anatomy of anterior cubital fossa, large veins, anterior triangle of neck, femoral triangle, Respiratory system including Airway, Tracheobronchial tree, CVS, CNS, pain pathway, NMJ, kidneys, Liver etc.

#### PHYSIOLOGY

- Cellular physiology, blood physiology, coagulation profile, Thermoregulation
- Nerve action potential, nerve conduction, physiology of pain, Acid base & Fluid and electrolyte balance, autonomic nervous system, Cardiac functions, cardiac rate and rhythm, circulation and hemodynamics.
- Pulmonary: Respiratory physiology, mechanics of ventilation, open and closed chest ventilation, ventilation/perfusion mismatch, pulmonary airway mechanics,
- Other systems: Renal, Hepatic, CNS, Endocrinal system, Metabolic effects of surgery, Endocrine response to anaesthesia and surgery

#### PHARMACOLOGY

- Drugs related to clinical anaesthesia, emergency lifesaving drugs, drugs used in critical care their distribution, metabolism, etc.

## II. CLINICAL SCIENCES

### CRITICAL CARE

- Early warning signs of impending critical illness. Causes of cardio-respiratory arrest, identification of patients at risk, corrective treatment of reversible causes, appropriateness of resuscitation and ICU admission.
- Clinical signs associated with critical illness, their relative importance and interpretation.
- Recognition of life threatening changes in physiological parameters.
- Treatment algorithms for common medical emergencies.
- Immediate management of acute coronary syndromes.
- Techniques of effective fluid resuscitation.
- Treatment strategies for abnormalities of fluid, electrolyte, glucose and acid base balance.
- Indications and methods for ventilatory support.
- Basic and complex arrhythmias- recognition and management.
- Indications for not starting resuscitation or ceasing an initiated attempt.
- Relevance of prior health status in determining risk of critical illness and outcomes.
- Criteria for admission to, and discharge from the ICU.
- Factors influencing intensity and site of care (floor, step down unit, ICU).
- Indications for and basic interpretation of chest radiographs, USG, CT scan and other common radiological imaging modalities.
- Principals of emergency airway management

## Diagnosis and management

- Acute chest pain Tachypnea and dyspnea
- Upper and lower airway obstruction
- Pulmonary edema/ARDS
- Pneumothorax
- Hypoxemia
- Hypotension
- Shock states
- Anaphylactic and anaphylactoid reactions
- Hypertensive emergencies
- Acute confusional states and altered consciousness
- Acute seizures/convulsion
- Oliguria and anuria
- Acute disturbances in thermoregulation
- Acute abdominal pain

## Management of organ system failure including

- Circulatory failure Respiratory failure Renal failure Hepatic failure Gastrointestinal failure Neurological impairment Sepsis
- Intoxication
- Peripartum complications
- Principles of blood product administration
- Principles of nutritional assessment and support
- Principles of mechanical ventilation including:
  - Interaction between the patient and ventilator
  - Ventilation for severe acute respiratory failure
  - Weaning from mechanical ventilation
- Management of analgesia and sedation of critically ill patient
- Treatment of infections including:
  - Antibiotic classes and mechanism of action
  - Principles of appropriate antibiotic usage
- Indications for surgical treatment

- Therapies for management of sepsis, e.g. Activated protein C
- Indications and principles for renal replacement therapy
- Complications of central line placement and how to minimize them
- Indications and principles of bronchoscopy
- Management of mass casualties
- Transport of the critically ill patient outside of the ICU
- Management of end of life care
- Legal and ethical issues in organ donor

## MONITORING

- Clinical assessment of vital organ function
- Hemodynamic monitoring with arterial, central venous and pulmonary artery catheters
- Bedside respiratory monitoring: evaluation of compliance, airway resistance and respiratory muscle strength
- Monitoring of cardiac arrhythmias and ischemia/infarction with continuous ECG
- Bedside monitoring of gas exchange, including blood gas analysis and non-invasive monitoring of  $\text{CO}_2$  exchange
- Simple assessment of metabolic and renal function, including acid base physiology, serum and urine electrolytes
- Neurological assessment through physical exam and interpretation of intracranial pressure.

## III. RECENT ADVANCES, ORGAN PRESERVATION & DONATION, MEDICOLEGAL ISSUES

### RESPONSIBILITIES

- Orders and prioritizes appropriate investigations
- Evaluates the risks and benefits related to specific investigations
- Interprets laboratory results in the context of the patient's condition
- Identifies abnormalities requiring urgent intervention



- Recognizes significant changes and need for repeated testing
- Documents investigations undertaken, results and action taken
- Principles of informed consent
- Principles of crisis management, conflict resolution, negotiation and debriefing
- Understand nonverbal communication with critically ill patients
- Principles of delivering bad news to patients and families
- Strategies to communicate complicated critical care issues to the general population

## BOOKS FOR REFERENCE

1. Text book of critical care by Shoemaker
2. Procedures and monitoring for the critically ill patients by William Shoemaker.
3. ICU by Paul Marino
4. Principles of Critical Care by F.E. Udwadia.
5. Recent trends in Anaesthesia and Critical Care.
6. Reference books as per the syllabus.

## JOURNALS

1. Journal of Critical Care Medicine
2. British Medical Journal
3. New England Journal of Medicine