

GOALS & OBJECTIVES OF ANESTHESIA ROTATION EMANUEL AND GOOD SAMARITAN HOSPITALS.

Level: PGY-1 Intern

Overall Competency Goals:

- I. Medical Knowledge
 - A. Gain a working knowledge of the basic principles of anatomy, pharmacology, and cardiopulmonary physiology as they apply to the performance of safe anesthesia.
- II. Patient Care
 - A. Achieve a basic understanding and an ability to perform a preoperative evaluation, safe induction and performance of general anesthetic, principles of regional anesthetic, and management of the patient in the immediate postoperative period.
 - B. Demonstrate ability to perform endotracheal intubation.
- III. Practice-Based Learning and Improvement
 - A. Improve their skill and efficiency in the anesthetic management over the course of the rotation.
- IV. Interpersonal Skills and Communication
 - A. Develop the ability to communicate with attending anesthesiologists, surgeons, and nursing staff the critical information needed to provide safe perioperative care.
 - B. Be able to communicate with patients and families effectively, such that their natural apprehension surrounding anesthesia and surgery is allayed.
- V. Professionalism
 - A. Display respect, compassion, and integrity in dealing with patients and all member of the healthcare team, and display sensitivity to age, gender, culture, and disabilities.
- VI. Systems-Based Practice
 - A. Be able to work effectively within the structure of the operating room and its environs while respecting the roles and contributions of all who work there.

SPECIFIC LEARNING OBJECTIVES

PATIENT CARE

1. Demonstrate ability to take and record a pertinent pre-anesthetic history and physical exam, with concentration on airway, cardiovascular system and respiratory system as well as identifying factors that will affect anesthetic management, including angina, recent MI, CHF, hypertension, arrhythmia, COPD, reactive airway disease, and disorders of the CNS, GI, GU, and hematologic systems, personal or family history of malignant hyperthermia, smoking, obesity, and substance abuse.
2. Describe influence of chronic medications and conditions of anesthetic management.
3. Demonstrate knowledge of the principles of effective pre-anesthesia medication by stating the objectives for use of drug for relief of anxiety, sedation, amnesia, analgesia, drying secretions, and reducing gastric acidity and volume.
4. Conduct appropriate intraoperative fluid and electrolyte therapy with the guidance of the instructor, including explaining the rationales for establishing both central and peripheral venous access, identifying the common sites for venous access and the contraindications and indications for each, demonstrating skill at establishing venous access by using sterile technique, successfully inserting several peripheral catheters of various calibers, and protecting the venipuncture site and immobilizing the catheter.
5. Explain and demonstrate ECG lead placement, including V5 lead placement and lead selection in optimizing detection of dysrhythmias and ischemia; compare and contrast the interpretation of data obtained by various noninvasive and invasive methods for monitoring blood supply; demonstrate vigilant monitoring of patients under anesthesia, and record and interpret the data obtained; and demonstrate knowledge of the monitoring techniques employed to assure patient safety, including: oxygen saturation monitoring, mass spectrometry, capnography, Swan-Ganz catheter use and oxymetric S-G catheter, and arterial blood gas analysis.
6. Demonstrate familiarity with the use of anesthetic machine by: tracing the flow of oxygen and nitrous oxide from the wall outlet or cylinder to the patient, setting flow meters to deliver several different prescribed oxygen concentrations, explaining the effect of the pressure relief valve on airway pressure and delivered volume during spontaneous and controlled ventilation, checking the breathing circuit for leaks, find and correct them, and explaining the relation between content volume and pressure gauge in an oxygen tank.

7. The resident will demonstrate proper airway and ventilatory management by describing the indications, risks and benefits of airway management by mask, intubation and laryngeal mask airway; identifying and stating the indications for use of curved and straight blade laryngoscopes, various kinds of masks, breathing circuits and oral and nasal airways; describing and identifying basic oropharyngeal and laryngotracheal anatomy; and identifying and overcoming upper airway obstruction with mask ventilation, using various masks, jaw thrusts, nasopharyngeal airway and oropharyngeal airway.
8. Recognize various forms of glottic obstruction and discuss the treatments including laryngospasm, acute epiglottitis, subglottic edema/stenosis, and presence of foreign bodies (eg poorly chewed food, teeth, dentures, blood, mucous, vomitus).
9. Successfully intubate several patients, and correctly identify within 10 seconds those situations where intubation was not successful.
10. Recognize and discuss the need for controlled or mechanical ventilation, using physical signs, cardiovascular symptoms, respiratory measurements and arterial blood gasses.
11. Predict probable need for ventilatory support, using blood gas analysis, respiratory rate and tidal volume, inspiratory pressure, compliance, vital capacity, and shunt fraction.
12. Prescribe appropriate parameters for mechanical ventilation.
13. Describe and correctly identifying indications for extubation.
14. Describe methods to treat intraoperative hypotension, including Trendelenberg position, volume expansion, intravenous medications, sympathomimetics, vasoconstrictors, and dopamine, or dobutamine, lessening or discontinuing the anesthetic, and correction of possible mechanical causes including chest tube placement for pneumothorax, changing from mechanical ventilation to hand ventilation, and reducing or eliminating PEEP, and improving cardiac output by decreasing myocardial oxygen consumption in the ischemic heart.
15. Identify patients at risk for aspiration pneumonitis and discuss treatments to reduce that risk.
16. Demonstrate care of the patient into the recovery room including:
 1. Giving a pertinent patient history and intraoperative summary to the recovery room nurse
 2. Discussing possible post op problems and their treatments including pain, nausea/vomiting, delayed emergence, hypertension, hypotension, airway management, hypothermia, recovery from regional anesthesia.
17. Demonstrate an understanding of potential post-operative problems related to the anesthetic and inquire about the following in the postoperative visit:
 1. All patients
 - a) Chest, gum, jaw pain
 - b) SOB, increased cough, increased sputum production
 - c) Numb/painful back, legs, arms, neck, jaw (looking for incorrect positioning)
 2. Patients who have undergone general anesthesia
 - a) Sore throat
 - b) Intraoperative recall
 - c) Nausea or vomiting
 3. Patients who have undergone regional anesthesia (spinal or epidural)
 - a) Headache
 - b) Eye or neck pain
 - c) Back pain
 - d) Change in motor function or sensation of legs
 - e) Bladder/bowel function

MEDICAL KNOWLEDGE

1. Demonstrate knowledge of the basic pharmacology and pharmacokinetics of the following premedication agents, including dosage schedules and relative and absolute contraindications:
 - a. Narcotics
 1. Morphine
 2. Meperdine
 3. Fentanyl
 - b. Sedatives
 1. Barbiturates
 2. Benzodiazepines
 - c. Anticholinergics
 1. Atropine
 2. Scopolomine
 - d. Drugs used to reduce the incidence of aspiration pneumonitis
 1. Cimetidine

2. Ranitidine
3. Metoclopramide
2. Describe how the following conditions will alter requirement for perioperative maintenance therapy: NPO, bowel prep, NG suction, and fever.
3. Discuss intraoperative considerations which alter maintenance fluid and electrolyte therapy including: blood loss, third spacing, effects of anesthetic breathing circuits, and temperature.
4. Demonstrate ability to interpret volume status from the following monitors of volume status:
 - a. examination of the patient
 - b. pulse and blood pressure
 - c. urine output
 - d. CVP
 - e. PCWP
5. Discuss indications, risks and benefits of crystalloid, colloid, blood product replacement therapies and hemodilution techniques.
 - a. Regarding the functions of blood volume
Oxygen carrying capacity immunity
 - b. Regarding complications of each type of therapy.
6. List clinical situations characterized by, recognition and therapy of the following:
 - a. Hyperkalemia
 - b. Hypokalemia
 - c. Hyponatremia
 - d. Hypocalcemia
7. Demonstrate knowledge of those aspects of the pharmacology of anesthetic agents which are relevant to the practice of surgical care including effect of narcotics on central nervous system; respiratory system; cardiovascular system; and gastro-intestinal system.
8. Describe effects of depolarizing and nondepolarizing agents on the neuromuscular junction.
9. Demonstrate knowledge of local anesthetic pharmacology appropriate to the practice of general medicine by classifying commonly used agents according to amide or ester linkage; comparing and contrasting the metabolism and elimination of ester and amide linked agents, and listing commonly used local anesthetics for: topical use, local infiltration, peripheral nerve blocks, plexus anesthesia, intravenous regional anesthesia, spinal anesthesia, and epidural anesthesia.
10. List acceptable doses of at least two agents used for topical and local infiltration anesthesia, two effects of the addition of a vasoconstrictor to the local anesthetic, signs of impending local anesthetic toxicity, therapeutic steps necessary to prevent or treat local anesthetic toxicity in the event of an accidental intravascular injection.
11. List several indications for spinal or epidural anesthesia, list several relative and absolute contraindications for regional anesthesia, and the effects of regional anesthesia on cardiovascular stability, respiratory function, recovery from anesthesia and surgery.
12. Describe the risks of anesthesia in the hypertensive patient and means of intraoperative control.
13. Discuss management of hypotension including listing various etiologies of hypotension;
14. Demonstrate knowledge of the following emergencies, including how to detect and manage laryngospasm, bronchospasm, aspiration, pneumothorax and pleural effusion, cardiac tamponade, air embolism, malignant hyperthermia, transfusion reactions and high spinal anesthesia.

III. PRACTICE-BASED LEARNING AND IMPROVEMENT

- A. Demonstrate ability to analyze performance of the day's anesthetic and suggest areas for improvement.

IV. INTERPERSONAL SKILLS AND COMMUNICATION

- A. Communicate an organized, accurate, and detailed evaluation to the faculty anesthesiologist and the recovery room nurse.
- B. Demonstrate effective communication skills with patients and families.

V. PROFESSIONALISM

- A. Treat all patients and families with respect and compassion, and interact appropriately with all staff.

VI. SYSTEMS-BASED PRACTICE

- a. Contribute to smooth functioning of the operating room and recovery room.