Rotation Title: Anesthesia for Ambulatory Surgery

I. Definition: The rotation is a one month rotation during the CA-1 year, which includes anesthesia for ambulatory surgery.

II. Curriculum: The residents are assigned to ambulatory surgical procedures at the Wichita Clinic outpatient surgery center.

III. Performance Assessments:

A. Self Assessment
You (the resident) are to check off each criterion as the material is mastered. Self reflection on your own competencies is critical.

B. Faculty Assessment
Faculty will periodically review your self assessment and discuss their assessments of your competencies. The overall scores on the six competencies will be reported to you at least weekly.

C. Mentor Assessment
Your mentor should meet with you quarterly and review your entire portfolio. The mentor should report areas in which you have deficiencies (for your level of training). This report may be to you and/or to the program director as determined by your mentor.

IV. Competencies Assessed (Performance Criteria):

A. Patient Care: During this rotation, the resident should be able to show progressive competencies in …

1. Performing proper preoperative evaluations
   a. Perform a rapid preoperative evaluation on primarily healthy ASA I and ASA II class patients, but differentiate when the patient is not appropriate for the ambulatory anesthesia setting
2. Providing general anesthesia for outpatients
   a. Perform inhalational anesthesia with short-acting agents and awaken the patient quickly and comfortably.
   b. Perform total intravenous anesthesia with propofol and short-acting narcotics.
   c. Manage inhalation induction in children.
   d. Administer short-acting muscle relaxants including appropriate reversal.
   e. Provide safe airway management, including mask ventilation, endotracheal intubation, and laryngeal mask airway.
3. Performing common regional anesthetics
   a. Axillary blocks and Bier blocks
   b. Spinal, caudal, and epidural blocks
4. Performing Monitored Anesthesia Care sedative techniques
   a. Perform MAC with appropriate intravenous agents administered intermittently.
   b. Perform MAC with appropriate intravenous agents administered via continuous infusion.
   c. Safely manage patient from “light” sedation through “deep” unconscious sedation.
5. Providing of postoperative management of the outpatient surgical patient
   a. Manage patients in the P ACU and treat postoperative pain, emesis and any other complications.
   b. Discharge patients from facility via Phase II recovery.

B. Medical Knowledge: At the conclusion of this rotation, the resident should be able to …

1. Describe pre-anesthesia testing for outpatients

2. Order the appropriate lab testing
3. Understand patient selection for ambulatory surgery. There is a need to assess the severity of common diseases such as diabetes, bronchospastic disease, morbidly obese patients, geriatric patients, ex- premature babies, children with previous upper respiratory tract infections, family history of malignant hyperthermia, sickle cell disease, mentally handicapped patients, congenital diseases, children with malignancy, and patients with uncommon diseases.
4. Discuss preoperative preparation including:
    a. NPO status and difference between adults and children
    b. Use of antacids and H2 receptor antagonists
    c. Use of antiemetics
    d. Use of anxiolytics, sedatives, and opioids
    e. Pediatric premedications and the pros and cons of parenteral presence in the induction time of chronic medications

5. Describe Anesthetic Management
    a. List and defend appropriate intraoperative monitoring for patients in the ambulatory setting
    b. Identify the pharmacokinetic properties which make short-acting agents appropriate and compare intravenous agents to inhalational agents
    c. Discuss muscle relaxants to be used in an outpatient setting including advantages and disadvantages
    d. List the pros and cons of mask ventilation vs. endotracheal ventilation vs. laryngeal mask airways
6. Describe Regional Anesthesia Techniques
    a. Explain the indication and use of an axillary block, Bier block, and lower extremity blocks such as ankle blocks
    b. Discuss the appropriate use and drugs used for central neural blocks such as spinal, caudal, and epidural
7. Describe Monitored Anesthesia Care (MAC) Sedation Techniques
    a. Explain the need and appropriate conduction of psychological preparation for monitored anesthesia care
    b. Discuss the pharmacokinetics and appropriateness of bolus IV techniques (such as Midazolam, Fentanyl)
    c. Discuss the appropriate use of continuous IV techniques (such as Propofol, Alfentanil and remifentanil)
    d. Explain the risks and benefits of "light" sedation through "deep" unconscious sedation
8. Describe Postoperative Management
    a. Describe appropriate postoperative management of a patient during Phase I recovery (PACU) including:
        i. Monitoring in the PACU
        ii. Pain management
        iii. Emesis management
        iv. Possible complications
    b. Discuss pertinent issues during Phase II recovery including:
        i. Discharge criteria for ambulatory surgical patients
        ii. The use of teaching instructions in the facility
        iii. Possible complications
    c. Describe how patients are followed-up postoperatively in the ambulatory setting.
    d. Identification and invention of common complications of ambulatory anesthesia.
9. Describe ambulatory surgery discharge criteria

The CA-1 resident on their anesthesia for ambulatory surgery rotation shall be responsible for mastering all material listed in Appendix A. These will be assessed by written and oral examinations.

C. Practice Based Learning and Improvement: During this rotation, the resident will demonstrate increasing competency in: …

1. Discussing important differences in treating outpatients versus inpatients
2. Accessing current literature for methods to fast-track outpatients
3. Performing history and physical examinations for outpatients
4. Describing the combination of techniques and therapies for dealing with nausea and vomiting
5. Evaluating the results of antiemetic therapy

D. Interpersonal and Communication Skills: The resident will

1. Interface with the team for smooth, rapid turnover while provide calming interface with the awake patient during conscious sedation and regional anesthesia

E. Professionalism: The resident will:

1. Arrive on time
2. Prioritize efficiency

3. Adapt to regular reassignment
4. Demonstrate sensitivity to the needs of geriatric patients

F. Systems-Based Practice: At the conclusion of this module, the resident should be able to …

1. Understand the difficulties parents have when their children have surgery
2. Understand efficiencies of outpatient centers
3. Understand cost-basis for doing outpatient surgery
4. Describe the impact of outpatient surgery on traditional hospital care
5. Describe advantages to patients of outpatient surgery, especially those job-related advantages
6. Describe the disadvantages

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Appendix A: Medical Knowledge expected to be mastered during CA-1 Anesthesia for Ambulatory Surgery Rotation

Lecture 10

Neuromuscular Function Monitoring

1) Neuromuscular Function: Nerve Stimulators, Electromyography (EMG)

Lecture 24

Pharmacogenetics

1) malignant hyperthermia (including diagnosis and therapy)
2) pseudocholinesterase deficiency
3) prolonged QT syndrome
4) genetic factors in drug dose-response relationships

Lecture 25

Anesthetics-Gases and Vapors

1) Physical Properties
2) Mechanism of Action
3) Effects on Central Nervous System (CNS)
4) Effects on Cardiovascular System
5) Effects on Respiration
6) Effects on Neuromuscular Function
7) Effects on Renal Function
8) Effects on Hepatic Function
9) Effects on Hematologic and Immune Systems
10) Biotransformation and Toxicity
11) Minimum Alveolar Concentration (MAC), Factors Affecting MAC
12) Trace Concentrations, OR Pollution, Personnel Hazards
13) Comparative Pharmacodynamics

Lecture 26

Opioids

1) mechanism of action
2) pharmacokinetics and pharmacodynamics
   (a) intravenous
   (b) epidural and intrathecal
3) metabolism and excretion
4) effect on circulation
5) effect on respiration
6) effect on other organs
7) side effects and toxicity
8) indications and contraindications
9) specific drugs

Lecture 27

Barbiturates and Propofol

1) Barbiturates
   a) mechanism of action
   b) pharmacokinetics and pharmacodynamics
   c) metabolism and excretion
   d) effect on circulation
   e) effect on respiration
   f) effect on other organs
   g) side effects and toxicity
   h) indications and contraindications
   i) specific drugs
2) Propofol
   a) mechanism of action
   b) pharmacokinetics and pharmacodynamics
   c) metabolism and excretion
   d) effect on circulation
   e) effect on respiration
   f) effect on other organs
   g) side effects and toxicity
   h) indications and contraindications

Lecture 28

Etomidate and Benzodiazepines

1) Etomidate
   a) mechanism of action
   b) pharmacokinetics and pharmacodynamics
   c) metabolism and excretion
   d) effect on circulation
   e) effect on respiration
   f) effect on other organs
   g) side effects and toxicity
   h) indications and contraindications
2) Benzodiazepines
   a) mechanism of action
   b) pharmacokinetics and pharmacodynamics
   c) metabolism and excretion
   d) effect on circulation
   e) effect on respiration
   f) effect on other organs
   g) side effects and toxicity
   h) indications and contraindications

Lecture 31

Muscle Relaxants (Depolarizing, Non-Depolarizing) – Part 1

1) Mechanism of Action
2) Pharmacokinetics and Pharmacodynamics, Abnormal Responses
3) Prolongation of Action
4) Metabolism and Excretion
5) Side Effects and Toxicity

Lecture 32

Muscle Relaxants (Depolarizing, Non-Depolarizing) – Part 2

1) Indications and Contraindications
2) Antagonism of Blockade
3) Drug Interactions (Antibiotics, Antiepileptics, Lithium, Magnesium, Inhalational Anesthetics)

Lecture 116

Urologic Surgery

1) Lithotripsy
2) Transurethral Resection of Prostate (TURP)
3) Irrigating Fluids and Hyponatremia

Lecture 117

Overview of Endocrine Physiology

1) Hypothalamus
2) Pituitary
3) Thyroid
4) Parathyroid
5) Adrenal Medulla
6) Adrenal Cortex
7) Pancreas

Lecture 118

Normal Body Metabolism

1) carbohydrates
   a) aerobic and anaerobic utilization; chemical processes, enzymes
   b) relationship to hormones; insulin; human growth hormone, glucocorticoids; glucagon, epinephrine
   c) effect of stress
2) proteins
   a) functions, hormones, antibodies
   b) cyclic adenosine monophosphate (cAMP); cyclic guanosine monophosphate (cGMP)
   c) lipids: triglycerides, lipoproteins, cholesterol
3) specific organ metabolism (brain, heart, liver, muscle)

Lecture 119

Pituitary Disease

(1) hypopituitarism, pituitary removal - substitution therapy
- (a) diabetes insipidus

(2) hyperpituitarism
- (a) acromegaly - airway management
- (b) inappropriate ADH secretion

Lecture 121

Adrenal Disease

(1) Cushing's Syndrome

(2) primary aldosteronism

(3) Addison's Disease

(4) pheochromocytorna
- (a) circulatory and metabolic manifestations
- (b) diagnosis
- (c) anesthetic management