4.8 Resuscitation

INSTRUCTIONAL OBJECTIVES

1. To understand the differences in pediatric and adult resuscitation methods.
2. To learn key elements of delivery room resuscitation.

4.8 Review questions

Case 1:
Term male is born via SVD, you are called to OR to help resuscitate this infant. On PE APGAR score 6/2, patient is currently bradycardic, tachypneic with apnic episodes and has a scaphoid abdomen. Discuss resuscitation and measures and differential diagnosis.

Case 2:
You are administering a GA ETT anesthesia for emergent C/S due to fetal distress to otherwise healthy 25yo mother. 32 week gestation male baby is born with APGAR scores of 4/5. There is no one else in the room to resuscitate the child, what are your ethical and medico-legal responsibilities to both mom and baby?
4.7 Apnea

INSTRUCTIONAL OBJECTIVES

1. To understand control of breathing, chemo receptors and neurologic
2. To understand the pathophysiology and associated morbidity of OSA
3. To discuss treatment of patients with OSA
4. To understand effect of anesthesia on respiratory control
5. To discuss special considerations of respiratory control in premature infants
6. To learn common anesthesia management techniques for premature apnea

morbidity in pediatric population

4.7 Review questions

Case 1:

6 year old white male presents for T/A. Secondary OSA. Patient has diagnosed Prader
Willie Syndrome. Now presents with DOE, PND refractory to nighttime CPAP.

Case 2:

2 month old (corrected gestational age currently = 35 weeks) presents for laser ROP
surgery. Patient currently has Oxygen requirement of 1/2L with no recent problems.
Discuss anesthetic management, including the choice of caffeine, and post anesthetic
care.
4.6 Post Obstructive Pulmonary Edema

INSTRUCTIONAL OBJECTIVES

1. Discuss path physiology of post obstructive pulmonary edema
2. Discuss differential diagnosis and treatments

4.6 Review question

At the completion of elective hydrocele repair on 2 ½ yo male, after removing the LMA, patient has significant laryngospasm with desideration to 65. After several minutes of CPAP, laryngospasm resolves but as you transport to PACU patient vomits. In PACU, SaO₂ remains in lo 90’s. Discuss differential diagnosis and treatment.
4.5 Anesthesia for the Child with EB

INSTRUCTIONAL OBJECTIVES

4.5 Review questions
4.4 **Anesthesia for Neonatal Surgery**

**INSTRUCTIONAL OBJECTIVES**

1. To identify common pediatric surgical pathologies
2. To review anesthesia management of common neonatal emergencies
3. To identify the unique physiological responses to surgery and anesthesia in neonates

4.4 **Review questions**

Case 1:

4 year old (34 week adjusted gestation age) white female presents with esophageal Atresia and distal TEF.

**Discuss:** Preoperative evaluation and anesthesia management

Case 2

Former 26 week preemie for BIH (adjusted gestational age 41 weeks currently). Patient is home and doing well, no recent medical history. **Discuss** important elements of past medical history and anesthetic management (general Vs. regional anesthesia)
4.3 Anesthesia for Pediatric Thoracic Surgery

INSTRUCTIONAL OBJECTIVES

1. To learn common Pediatric Thoracic Pathophysiology, both congenital and acquired.
2. To understand some commonly used techniques for single lung ventilation in pediatric patients.

4.3 Review questions

1. A four year old white female with congenital scoliosis for AP spinal fusion Cobb angle = 75°, SaO₂ 95-6 (RA) discuss Anesthesia Management.
2. 8 day old white male (34 weeks gestation) TEF (C type) for repair. Discuss pre op evaluation and intra op airway management.
4.2 Anesthesia for Pediatric Cardiac Surgery

INSTRUCTIONAL OBJECTIVES

4.2 Review questions
4.1 Anesthesia for Organ Transplant

INSTRUCTIONAL OBJECTIVES

1. To understand basic Pathophysiology of end stage renal and hepatic disease and anesthetic management of transplant surgery.
3.3 **Airway Complications**

INSTRUCTIONAL OBJECTIVES

1. Discuss diagnosis and differential diagnosis of URI

2. Discuss pro’s and con’s of elective intubation in child with URI

3. Discuss potential intra- and post-operative complications of a patient with URI

3.3 **Review question**

2 yo male presents for emergent I/D of open tibial fracture, he fell at cousin’s birthday party after having 2 slices of pizza, 3 cups of punch and cake about 1 hour ago). Current medical history includes fever (102 F), green rhino rhea and malaise for the past 3 days. Discuss anesthetic management and possible post anesthetic complications.
3.2 Pain Management in Infants and Children

INSTRUCTIONAL OBJECTIVES

1. To understand common morbidities of pain management in pediatrics.
2. To be aware of contraindications and side effects, common pain management techniques.

3.2 Review questions

1. 11 month old Hispanic male for resection of bilateral Wilms Tumor, discuss post pain management.
3.1 **General Considerations of Pediatric Morbidity and Mortality**

**INSTRUCTIONAL OBJECTIVES**

1. To be familiar with POCA registry.
2. To understand causes of anesthetic morbidity and mortality in pediatric population.

3.1 **Review questions**

A 15 year old male presents for Anterior and posterior spinal fusion (curve = 75 degrees, in thoracic-lumbar region). Patient has severe development delay and he is accompanied by the custodian at the group home. Describe the pre anesthetic workup that you would require?

What are the anesthetic risks necessary to discuss, and with whom would you discuss them?
2.3 **Airway Management**

**INSTRUCTIONAL OBJECTIVES**

1. Discuss the pathophysiology of asthma including neuro-hormonal and immunological control of bronchomotor tone
2. Discuss effects of anesthesia agents (both IV and intubation) on bronchomotor tone
3. Discuss interaction of asthma treatment and anesthesia agents
4. Discuss key elements of anesthesia preoperative evaluation and treatment in the asthmatic child

**2.3 Review questions**

3 year old child for elective strabismus surgery. Patient has past medical history of RAD with last episode 3 weeks PTA, treated with taper dose steroids. Patient currently presents with clear rhinnorhea, afebrile but with decreased appetite. PE reveals occasional wheezes in bilateral lung bases and $\text{SaO}_2 = 96-97$. Discuss preoperative management and treatment, inclusion techniques and risks of anesthesia in this patient at this time.
2.2 **Intra-operative Anesthesia Techniques**

**INSTRUCTIONAL OBJECTIVES**

1. To learn key elements of pediatric airway history and physical examination
2. To review frequently encountered pediatric airway pathophysiology and anesthesia management

2.2 **Review Questions**

8 year old female presents to OR for urgent DL/Bonc, secondary JLP. Patient has been hospitalized and NPO 9 hours, currently patient has moderate respiratory distress (RR =36, SaO$_2$ =94, quiet and diaphoretic. Discuss anesthetic management including induction techniques and use of jet ventilation.
2.1 **Pre-anesthetic Evaluation and Management** (or “What to do when faced with a screaming, crying, wiggling 1 year old”)

INSTRUCTIONAL OBJECTIVES

1. To understand the key elements of a pediatric pre-anesthesia interview
2. To understand proper utilization of pre-anesthesia laboratory investigations
3. To understand some of the elements of parental and patient preoperative anxiety
4. To be familiar with various pre-anesthesia methods and regimes for decreasing patient anxiety and fear
5. To understand a rational and safe approach to NPO instructions for pediatric surgical patients
6. To review pre-anesthetic problems unique to pediatric population

2.1 **Review questions**

Case 1:

2 year old female for T/A secondary to OSA. This patient has a history of Goldenhar’s syndrome. Patient is very fussy, Mom states it is because she has been NPO since dinner last PM at 1800.

**Discuss:** essential pre-anesthesia information needed

Case 2:

17 year old male for elective SCIFE repair. Patient has a history of autism and is living in a group home. Presently, he is accompanied by his nurse from the home and is hiding in the corner of the pre op area.

**Discuss:** Pre anesthetic preparation of this patient including elements of informed consent
1.2 Pharmacological considerations

INSTRUCTIONAL OBJECTIVES

1. To review elements of pharmacokinetics
2. To understand the difference in uptake and distribution in children vs. adults
3. To understand pharmacokinetic differences of oral midazolam in infants and children
4. To understand pharmacodynamic differences of narcotics in infants and children
5. To understand age related differences in NMJ and effect on NDMR

1.2 Review Questions

2 month old male (adjusted gestation age, 36 weeks) comes in for repair BIH. Past medical history includes, moderate BPD with oxygen requirement of 1/8L O₂, PDA ligation. Present medical history is unremarkable. Patient has been NPO for 9 hours. Discuss pre anesthetic preparation, anesthetic management techniques and post anesthetic complications.
1.1 **Anatomic and Physiologic Considerations of the Infant and Child**

**INSTRUCTIONAL OBJECTIVES**

1. To understand anatomic airway differences between adults and neonates
2. To understand normal physiologic reflexes in the larynx
3. To review several airway anomalies found in neonates
4. To learn diagnostic signs of airway obstruction and differential diagnoses

1.1 **Review questions**

2-1/2 year old male presents with SOB and drooling. Mom states he has had fever (102°F) for 4-6 hours and is not “acting like himself. He is tired and sleeping”. Also she thinks he might have choked on peanuts within the last 48 hour. Discuss differential diagnosis and anesthetic management (including airway management techniques).