

Pediatric Sedation Rotation Examination

- _____ 1. Which of the following medical conditions would **NOT** place a child at significantly greater risk to receive sedation?
- History of obstructive sleep apnea
 - Age younger than 1 year
 - ASA level III
 - Well-controlled seizure disorder
- _____ 2. Which patient is at **LOWEST** risk of experiencing an adverse sedation event?
- A 6-week-old infant with a seizure disorder undergoing a head MRI scan
 - A 6-year-old child with ALL in remission, requiring a lumbar puncture
 - A 4-year-old child with congenital hydrocephalus requiring a head CT scan to rule out shunt malfunction
 - A 3-year-old with a temperature of 104° F. requiring a lumbar puncture
 - A 10-year-old with pneumococcal pneumonia requiring a pleurocentesis
- _____ 3. Ideally in elective moderate sedation and deep sedation cases, pediatric patients should meet the following NPO guidelines:
- *Four hours for milk/solids (\leq 6 months of age)*
 - *Six hours for milk/solids ($>$ 6 months of age)*
 - *Four hours for breast milk (all ages)*
 - *Two hours for clear liquids (all ages)*
- True
 - False
- _____ 4. Which of the following statements is **FALSE** when considering pulse oximetry?
- Required during sedation
 - Not needed during patient transfer between sites when sedated
 - Below 90% is indicative of clinically relevant hypoxemia
 - Time lag exists between oxygen desaturation detected by pulse oximetry and arterial oxygen desaturation
 - Can give false readings in presence of vasoconstriction
- _____ 5. The following are characteristics of midazolam **EXCEPT**:
- Poor hypnotic agent (sleeper)
 - Can be administered oral, rectal, IV
 - Rapid onset with short duration of action intravenously
 - Approximately 2-3 times more potent than diazepam
 - Effective analgesic properties when used in high doses
- _____ 6. The primary difference among opioid agonists at equipotent doses is:
- Degree of respiratory depression
 - Analgesic effects
 - Pharmacokinetic profile
 - Amnestic effects
 - Reversibility of clinical effects with naloxone

- ___ 7. Naloxone reverses which of the following opioid effects?
- Analgesia
 - Respiratory depression
 - Sedation
 - Miosis
 - All of the above
- ___ 8. Ketamine is relatively contraindicated in the patient populations described below **EXCEPT**:
- Child with increased intracranial pressure
 - Adolescent with schizophrenia
 - Patient with asthma
 - Child with severe systemic hypertension
 - Child with visual disturbances
- ___ 9. Considerations with the administration of naloxone (Narcan) include all of the following **EXCEPT**:
- Appropriate as a reversal agent for midazolam (Versed)
 - Onset of action is 1-2 min
 - Duration of action is shorter than most opioid agonists
 - High doses may cause pulmonary edema, arrhythmias, hypertension, or tachycardia
- ___ 10. The most appropriate graded sequence of actions that should occur in a child who experiences complete airway obstruction and progressive decline in oxygen saturation during sedation is:
- Oxygen administration, airway positioning, application of a mask and flow-inflation bag, and bag mask ventilation
 - Application of anesthesia mask and bag, airway positioning, and bag mask ventilation
 - Bag mask ventilation, airway positioning, and application of anesthesia mask to airway
 - Airway positioning with oxygen administration, application of mask anesthetic bag, positive pressure ventilation
- ___ 11. Which statement best describes Moderate Sedation?
- Controlled state of unconsciousness with loss of pain response
 - Complete loss of airway reflexes
 - Blunted response to "light" tactile physical and/or verbal stimulation
 - Pediatric sedation score of 5
- ___ 12. Which of the following monitoring tools is absolutely required to continuously monitor the patient during Moderate Sedation?
- EKG
 - Pulse oximetry
 - Blood pressure monitor
 - End tidal CO₂ monitor

- ____ 13. What part of the pediatric airway decreases in anterior-posterior diameter and is the most likely area of obstruction in a deeply sedated child with airway obstruction?
- Soft palate to posterior pharynx
 - Base of tongue to posterior pharynx
 - Nasopharynx
 - Subglottic area
- ____ 14. The most common serious adverse event associated with intravenous ketamine administration in an otherwise healthy child is:
- Laryngospasm
 - Seizures
 - Increased intracranial pressure
 - Hypotension
 - Bradycardia
- ____ 15. Which ABG best describes an otherwise healthy child who is deeply sedated with an SPO₂ of 90% on room air?
- 7.40/40/60
 - 7.25/55/65
 - 7.25/45/47
 - 7.45/50/70
- ____ 16. In pediatric procedural sedation, benzodiazepines are typically used to:
- Promote amnesia
 - Provide anxiolysis
 - Induce sleep
 - Enhance muscle relaxation (not paralysis)
 - a, b, and c
 - a, b, and d
- ____ 17. The Therapeutic Window describes the relationship between the drug concentration and its therapeutic and adverse effects.
- True
 - False
- ____ 18. Factors determining the most effective loading dose for a sedative drug include all of the following **EXCEPT**:
- Desired clinical effect
 - Volume of distribution
 - Desired plasma concentration
 - Drug clearance
- ____ 19. Which of the following is **NOT** correct for chloral hydrate?
- Active metabolite is trichloroethanol
 - Elimination half-life is 7 to 11 hours
 - Has no respiratory depressant effects
 - Requires first-pass hepatic metabolism to be effective
 - Tastes bad

- ____ 20. What part of the physical exam is required prior to sedative administration?
- Weight in kilograms
 - Airway assessment
 - Baseline pain assessment
 - Brief neurological exam
 - All of the above
- ____ 21. Parental (patient) education prior to sedation includes discussion of all of the following **EXCEPT**:
- Potential adverse events
 - Anticipated sedative effects
 - Specific procedure options
 - Sedative options for the procedure
- ____ 22. Phase 1 discharge criteria include assessment of all of the following **EXCEPT**:
- Oxygen saturation
 - Activity level
 - Ability to resume oral intake
 - Level of consciousness
- ____ 23. Which pharmacologic property is the most important factor determining a sedative drug's onset and duration of action?
- Lipid solubility
 - Degree of ionization
 - Receptor affinity
 - Degree of protein binding
- ____ 24. Fentanyl is more effective than morphine for acute procedural pain control because:
- Fentanyl has a shorter elimination half-life
 - Fentanyl is more potent
 - Fentanyl has a more rapid onset of action
 - Fentanyl has fewer respiratory depressant effects
- ____ 25. Which drug and drug receptor system **do not** match?
- Midazolam – gamma aminobutyric acid (GABA_A) receptor
 - Fentanyl – μ -opioid receptors
 - Clonidine – acetylcholine receptors
 - Ketamine – N-methyl-D-aspartate (NMDA) receptor
- ____ 26. Poor outcome following an adverse sedation event is **NOT** associated with:
- Inadequate monitoring
 - Intravenous sedation
 - Incomplete patient assessment
 - Insufficient practitioner education
- ____ 27. Which statement is **not** consistent with an otherwise healthy, deeply sedated 4-year-old with an EtCO₂ 52 and SpO₂ 99% on "blow-by" oxygen?
- The child is hypoventilating
 - The arterial pCO₂ is 56
 - The child has a mild degree of upper airway obstruction
 - The arterial pO₂ is 45

- ___ 28. The most probable pharmacokinetic cause of inadequate clinical effect and low total serum concentration of a sedative following a loading dose is:
- Large volume of distribution (V_D)
 - Increased renal excretion
 - Reduced hepatic clearance
 - High protein binding
- ___ 29. Which of the following is not true of a deeply sedated child?
- Reduced pharyngeal muscle tone
 - Decreased ventilatory response to CO_2
 - Easily arouses to verbal commands
 - May be hypotensive
- ___ 30. Which of the following is required PRIOR to sedation?
- Documentation of consent
 - Pre-sedation history and physical exam
 - A "time out"
 - Parent/patient counseling explaining risks and options
 - All of the above
- ___ 31. The Pediatric Sedation Policy and Procedure applies to which of the following situations?
- Chest tube insertion following intravenous fentanyl and midazolam
 - Postoperative morphine administration
 - Intravenous ketorolac for postoperative pain
 - Propofol administration in OR for tonsillectomy
- ___ 32. A 2-year-old is receiving a propofol infusion for an MRI scan. Which answer is most consistent with hypoventilation?
- $EtCO_2$ 60, P_aCO_2 64, SpO_2 89%, RR 18
 - $EtCO_2$ 40, P_aCO_2 44, SpO_2 97%, RR 16
 - $EtCO_2$ 60, P_aCO_2 34, SpO_2 90%, RR 24
 - $EtCO_2$ 30, P_aCO_2 45, SpO_2 96%, RR 30
- ___ 33. Goals of pediatric procedural sedation include all of the following **EXCEPT**:
- Control of physical discomfort or pain
 - Maintenance of patient safety
 - Timely reporting of diagnostic results
 - Provision of conditions that promote valid procedural results
- ___ 34. Which statement is not true when comparing midazolam to lorazepam?
- Both drugs are highly protein bound
 - Both drugs are conjugated to active metabolites
 - Both drugs work through the GABA receptor system
 - Lorazepam has a longer elimination half-life than midazolam