This book is respectfully dedicated to

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and

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in appreciation of their leadership, mentorship, and continued support of pediatric surgical education.

I also dedicate this work to my family, for their patience, encouragement, and constant support.

PREFACE

This book is intended as a practical, high-quality MCQ resource for pediatric surgery trainees and practicing surgeons. The questions are designed to reinforce core concepts, stimulate clinical reasoning, and support examination preparation.

The content focuses on clinically relevant principles commonly encountered in pediatric surgical practice. Explanations are written to clarify reasoning and strengthen understanding through active recall.

This question bank is meant to complement standard textbooks, institutional guidelines, and clinical training.

I hope this resource proves useful in study, teaching, and daily clinical practice.

Dr. Safwan Ahmad Khan

800+ Pediatric Surgery MCQs: Board Review and Clinical Practice

Dr. Safwan Ahmad Khan

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NEONATAL CARDIOVASCULAR PHYSIOLOGY AND CARE

Q 1: What are the four key anatomical abnormalities in Tetralogy of Fallot?

A. Pulmonary stenosis, ventricular septal defect, overriding aorta, right ventricular hypertrophy

B. Pulmonary atresia, ventricular septal defect, overriding aorta, left ventricular hypertrophy

C. Pulmonary stenosis, atrial septal defect, coarctation of aorta, right ventricular hypertrophy

D. Pulmonary stenosis, ventricular septal defect, patent ductus arteriosus, right ventricular hypertrophy

Answer: A

Explanation: Tetralogy of Fallot is characterized by four key anatomical abnormalities: pulmonary stenosis, ventricular septal defect, overriding aorta, and right ventricular hypertrophy.

Q 2: Tetralogy of Fallot is the most common type of what?

A. Acyanotic congenital heart defect

B. Cyanotic congenital heart defect

C. Left-sided heart defect

D. Acquired heart disease

Answer: B

Explanation: TOF is the most common cyanotic congenital heart defect.

Q 3: What causes cyanosis in Tetralogy of Fallot?

A. Shunting of oxygenated blood to the lungs
B. Shunting of deoxygenated blood to the systemic circulation
C. Increased pulmonary blood flow
D. Left ventricular failure

Answer: B

Explanation: Cyanosis results from shunting of deoxygenated blood from the right ventricle to the systemic circulation via the VSD and overriding aorta.

Q 4: In untreated Tetralogy of Fallot, chronic cyanosis often leads to compensatory polycythemia. What is a potential complication of this condition?

A. Anemia
B. Polycythemia
C. Leukopenia
D. Thrombocytopenia

Answer: B

Explanation: Compensatory polycythemia increases blood viscosity, raising the risk of hyperviscosity syndrome, which can cause thrombosis, stroke, or other ischemic events.

Q 5: What is the preferred surgical approach for Tetralogy of Fallot in infancy?

A. Palliative shunt only
B. Primary repair

C. Heart transplantation

D. Medical management alone

Answer: B

Explanation: Primary repair is the preferred approach in infancy, typically at median age 3-6 months.

Q 6: What is the 30-day survival rate after surgical repair in high-volume centers?

A. >80%

B. >90%

C. >95%

D. >99%

Answer: C

Explanation: The 30-day survival rate is greater than 95% in high-volume centers.

Q 7: What is the approximate 30-year survival rate after repair of Tetralogy of Fallot?

A. 70%

B. 80%

C. 90%

D. 95%

Answer: C

Explanation: The 30-year survival after repair is approximately 90%.

Q 8: What supplementation is recommended to reduce the risk of congenital heart defects like TOF?

A. Vitamin D
B. Folic acid
C. Iron
D. Calcium

Answer: B

Explanation: Preconception folic acid supplementation reduces the overall risk of congenital heart defects.

Q 9: What is a common late complication after surgical repair of Tetralogy of Fallot?

A. Pulmonary stenosis
B. Pulmonary regurgitation
C. Aortic stenosis
D. Mitral regurgitation

Answer: B

Explanation: Pulmonary regurgitation is a common late complication, occurring in 60-80% of patients at 20 years post-repair.

PEDIATRIC ANESTHESIA

Q 10: In infants, what physiological factor predisposes them to hypoxia during anesthesia?

A. Increased functional residual capacity

B. Reduced functional residual capacity and increased oxygen consumption

C. Decreased heart rate

D. Mature hepatic systems

Answer: B

Explanation: Reduced functional residual capacity and increased oxygen consumption in infants predispose to hypoxia.

Q 11: Which drug is used for premedication to reduce anxiety in children?

A. Propofol

B. Fentanyl

C. Midazolam

D. Dexmedetomidine

Answer: C

Explanation: Midazolam is used for anxiety reduction as premedication.

Q 12: Which syndrome is associated with atlantoaxial instability and airway stenosis?

A. Pierre Robin sequence

B. Down syndrome

C. Treacher Collins syndrome

D. Marfan syndrome

Answer: B

Explanation: Down syndrome is linked to atlantoaxial instability due to ligamentous laxity and upper airway issues like subglottic stenosis, requiring careful airway management in anesthesia.

Q 13: What is the molecular mechanism of malignant hyperthermia?

A. Uncontrolled calcium release in skeletal muscle

B. Decreased drug metabolism

C. Airway obstruction

D. Hypotension

Answer: A

Explanation: Malignant hyperthermia involves uncontrolled calcium release in skeletal muscle via RYR1 mutations.

SEPSIS AND RELATED CONSIDERATIONS

Q 14: In which age group is the incidence of sepsis highest?

A. Adolescents

B. Children 1-5 years

C. Neonates and infants (<1 year)

D. School-aged children

Answer: C

Explanation: The highest incidence of sepsis is in children under 1 year, particularly neonates.

Q 15: In the pathogenesis of sepsis, what is the initial immunologic event that triggers the systemic inflammatory response?

A. Recognition of pathogen-associated molecular patterns (PAMPs) by pattern recognition receptors (PRRs)

B. Overproduction of pro-inflammatory cytokines such as TNF-α and IL-6

C. Invasion of pathogens through physical or immune barriers

D. Endothelial injury leading to capillary leak

Answer: A

Explanation: The initial step in sepsis pathogenesis involves recognition of PAMPs by PRRs on immune cells, which then triggers downstream inflammatory cascades including cytokine release.

Q 16: In a pediatric patient with suspected sepsis, which of the following vital sign abnormalities is typically considered a late finding?

A. Tachycardia
B. Tachypnea
C. Hypotension
D. Altered mental status

Answer: C

Explanation: Hypotension is often a late sign in pediatric sepsis, as children can maintain blood pressure through compensatory mechanisms until late in the disease process.

Q 17: What is the typical positivity rate of blood cultures in sepsis cases?

A. 20-30%
B. 50-60%
C. 5-10%
D. 80-90%

Answer: A

Explanation: Blood cultures are positive in approximately 20-30% of sepsis cases.

Q 18: For what purpose is a chest X-ray primarily used in the evaluation of sepsis?

A. To identify abdominal abscesses
B. To detect osteomyelitis
C. To identify a pulmonary source such as infiltrates or effusion
D. To assess neurological involvement

Answer: C

Explanation: Chest X-ray is used to identify a pulmonary source, including infiltrates or effusion.

Q 19: According to current sepsis management guidelines, what is the recommended timeframe for administering broad-spectrum antibiotics in a pediatric patient with suspected sepsis and signs of organ dysfunction?

A. Within 24 hours of presentation
B. Within 1 hour of recognition
C. After blood culture results are available
D. Within 3 hours of triage

Answer: B

Explanation: The Surviving Sepsis Campaign recommends administration of broad-spectrum antibiotics within 1 hour of recognition of sepsis with organ dysfunction to improve outcomes.

Q 20: What is the primary indication for surgical intervention in sepsis?

A. To administer antibiotics
B. For fluid resuscitation
C. Definitive source control when a drainable focus is identified
D. To monitor vital signs

Answer: C

Explanation: Surgical management is indicated for definitive source control when a drainable focus of infection is identified.

Q 21: Which of the following is a recognized complication of severe sepsis in pediatric patients?

A. Hypertension requiring treatment
B. Acute respiratory distress syndrome (ARDS)
C. Improved neutrophil function

D. Decreased C-reactive protein levels

Answer: B

Explanation: Complications of sepsis include septic shock, Acute Respiratory Distress Syndrome (ARDS), Acute Kidney Injury (AKI), Disseminated Intravascular Coagulation (DIC), and multiple organ dysfunction syndrome (MODS).

Q 22: What is a key prevention strategy for sepsis?

A. Avoiding all physical activity
B. Adherence to vaccination schedules
C. Using antibiotics prophylactically in all children
D. Limiting fluid intake

Answer: B

Explanation: Prevention strategies include adherence to vaccination schedules, strict hand hygiene, and central line bundles in hospitals.

Q 23: Which of the following is a recognized complication of severe sepsis in pediatric patients?

A. Hypertension requiring treatment
B. Acute respiratory distress syndrome (ARDS)
C. Improved neutrophil function
D. Decreased C-reactive protein levels

Answer: B

Explanation: ARDS is a serious pulmonary complication of sepsis resulting from inflammatory-mediated damage to the alveolar-capillary membrane, leading to hypoxemic respiratory failure.
