Archer Child Health Cardio/Respiratory Practice Test (Sample)

Study Guide

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Questions

1. What is the most appropriate intervention when a child experiences frequent vomiting after taking digoxin?

A. Repeat the dose

B. Monitor the child closely

C. Withhold the next dose if vomiting occurs

D. Administer another antiemetic

2. What is the most common viral cause of bronchiolitis in infants?

A. Influenza virus

B. Respiratory syncytial virus (RSV)

C. Parainfluenza virus

D. Coronavirus

3. Which approach is typically best to manage a child's asthma during a wheezing episode?

A. Immediate hospitalization

B. Use of rescue inhaler

C. Avoiding all physical activity

D. Administering cough syrup

4. What does a prolonged expiration phase in a child suggest?

A. Obstructive lung disease, such as asthma

B. Restrictive lung disease

C. Acute bronchitis

D. Normal lung function

5. What is the first-line treatment for an asthma exacerbation?

A. Intravenous steroids

B. Inhaled short-acting beta-agonists

C. Oral antihistamines

D. Long-acting bronchodilators

6. What role does a pediatric cardiologist play in addressing hereditary heart disease in children?

A. Provides nutritional counseling

B. Conducts regular screenings and evaluations

C. Administers vaccinations

D. Prescribes antibiotics for prevention

7. During a respiratory illness, how should fluid intake be managed for a child with cystic fibrosis?

A. Reduce fluids to avoid complications

B. Maintain normal fluid intake levels

C. Increase water intake

D. Only give fluids during meals

8. What is the recommended suction pressure for infants and children up to 24 months?

A. 100-120 mmHg

B. 80-100 mmHg

C. 60-80 mmHg

D. 120-140 mmHg

9. Which common pediatric condition is characterized by a barking cough and stridor?

A. Bronchiolitis

B. Asthma

C. Pneumonia

D. Croup

10. What is the definition of "chronic cough" in pediatrics?

A. A cough persisting for more than 4 weeks

B. A cough occurring only at night

C. A cough that resolves within 7 days

D. A cough only present during exercise

Answers

1. C
2. B
3. B
4. A
5. B
6. B
7. C
8. B
9. D
10. A

Explanations

1. What is the most appropriate intervention when a child experiences frequent vomiting after taking digoxin?

A. Repeat the dose

B. Monitor the child closely

C. Withhold the next dose if vomiting occurs

D. Administer another antiemetic

When a child experiences frequent vomiting after taking digoxin, withholding the next dose if vomiting occurs is the most appropriate intervention. Digoxin is a medication that can be toxic if not administered correctly, and vomiting may indicate that the child is unable to retain the medication in their system. Withholding the dose helps prevent further gastrointestinal irritation and reduces the risk of potential digoxin toxicity. In a clinical setting, it is critical to consider the child's overall condition, as frequent vomiting may reflect underlying issues that need to be addressed. In contrast to repeating the dose, which could exacerbate toxicity and persistence of symptoms, or monitoring closely without taking any action, which could leave the child at risk for further vomiting and complications, withholding the dose prioritizes the safety and well-being of the child. Additionally, administering another antiemetic does not address the root cause of the vomiting related to the digoxin intake and may not be an effective solution without first determining why the child is vomiting. Thus, the decision to withhold the next dose aligns with safe medication administration practices and follows the principle of "do no harm."

2. What is the most common viral cause of bronchiolitis in infants?

A. Influenza virus

B. Respiratory syncytial virus (RSV)

C. Parainfluenza virus

D. Coronavirus

Respiratory syncytial virus (RSV) is recognized as the most common viral cause of bronchiolitis in infants. This virus is particularly prevalent in the winter months, leading to widespread outbreaks. RSV infects the respiratory epithelium, resulting in airway inflammation, increased mucus production, and narrowed airways, which are hallmarks of bronchiolitis. The age group primarily affected by RSV includes infants under two years old, which is why it is a critical focus in pediatric care. Influenza virus, while it can cause similar respiratory symptoms, is not the leading cause of bronchiolitis specifically. Parainfluenza virus and various strains of coronaviruses can also contribute to respiratory illnesses in children, but they do not occur with the same frequency or severity in the context of bronchiolitis as RSV does. Thus, RSV's predominance as a causative agent underscores its importance in pediatric respiratory health.

3. Which approach is typically best to manage a child's asthma during a wheezing episode?

A. Immediate hospitalization

B. Use of rescue inhaler

C. Avoiding all physical activity

D. Administering cough syrup

Using a rescue inhaler is the best approach to manage a child's asthma during a wheezing episode because it provides quick relief from symptoms. Rescue inhalers, which contain bronchodilators, work by relaxing and opening the airways in the lungs, allowing the child to breathe more easily. This immediate action is crucial during an asthma attack when wheezing and difficulty breathing occur. While hospitalization might be necessary for severe cases, it is not typically the first line of action for most wheezing episodes that can be managed effectively at home with a rescue inhaler. Avoiding physical activity is a preventive measure for long-term asthma management rather than an immediate response to an acute episode. Likewise, administering cough syrup does not address the underlying cause of wheezing in asthma and may not provide any therapeutic benefit during an episode.

4. What does a prolonged expiration phase in a child suggest?

A. Obstructive lung disease, such as asthma

B. Restrictive lung disease

C. Acute bronchitis

D. Normal lung function

A prolonged expiration phase in a child is indicative of obstructive lung disease, such as asthma. In obstructive conditions, there is an increase in airway resistance due to factors like bronchoconstriction, inflammation, or mucus production. This leads to difficulty in expelling air from the lungs, causing an extended expiration phase. During the expiration phase, the child may experience wheezing or a prolonged effort to breathe out, often associated with a feeling of tightness in the chest. These symptoms align with respiratory issues such as asthma, where the airways become narrowed. In contrast, restrictive lung diseases involve reduced lung volumes or stiffness of the lung tissue, which typically do not present with prolonged expiration but instead may show difficulty with both inhalation and exhalation. Conditions like acute bronchitis can also cause airway obstruction, but the hallmark sign of prolonged expiration is more strongly associated with chronic obstructive diseases. Normal lung function would not exhibit any abnormal changes in the expiration phase. Therefore, observing a prolonged expiration phase is a key indicator of potential obstructive lung disease in children.

5. What is the first-line treatment for an asthma exacerbation?

A. Intravenous steroids

B. Inhaled short-acting beta-agonists

C. Oral antihistamines

D. Long-acting bronchodilators

Inhaled short-acting beta-agonists are considered the first-line treatment for an asthma exacerbation because they provide rapid relief of bronchospasm by relaxing the smooth muscles in the airways. These medications, such as albuterol, act quickly to alleviate symptoms such as wheezing, shortness of breath, and chest tightness. They are essential in emergency settings for immediate management of asthma attacks because they can act within minutes, making them highly effective for urgent situations. Other treatment options may play roles in the management of asthma but are not suitable as first-line responses during an exacerbation. For instance, intravenous steroids are typically reserved for more severe cases or those requiring hospitalization. Oral antihistamines are primarily used for allergic reactions and do not directly address bronchoconstriction. Long-acting bronchodilators serve as maintenance therapy rather than immediate relief during an exacerbation, as they take longer to onset and are not intended for acute treatment.

6. What role does a pediatric cardiologist play in addressing hereditary heart disease in children?

A. Provides nutritional counseling

B. Conducts regular screenings and evaluations

C. Administers vaccinations

D. Prescribes antibiotics for prevention

A pediatric cardiologist specializes in diagnosing and treating heart conditions in children, including hereditary heart diseases. Their primary role involves conducting regular screenings and evaluations to monitor the child's heart health and assess any potential issues arising from genetic predispositions. These screenings can include echocardiograms, ECGs (electrocardiograms), and other diagnostic tests that help identify any structural or functional heart problems. By closely monitoring a child's heart health, the pediatric cardiologist can detect issues early, guide treatment plans, and provide families with the necessary education and support regarding the condition. This proactive approach is essential for managing hereditary heart disease effectively and ensuring better health outcomes for affected children.

7. During a respiratory illness, how should fluid intake be managed for a child with cystic fibrosis?

A. Reduce fluids to avoid complications

B. Maintain normal fluid intake levels

C. Increase water intake

D. Only give fluids during meals

The management of fluid intake for a child with cystic fibrosis during a respiratory illness is crucial due to the nature of the condition. Cystic fibrosis leads to thickening of mucus, which can obstruct airways and cause respiratory complications. In this context, increasing water intake is important because adequate hydration helps thin the mucus, making it easier for the child to breathe and clear secretions. Furthermore, during respiratory illnesses, children with cystic fibrosis may experience fluid loss due to increased respiratory effort, fever, or sweating, which can exacerbate their condition. By increasing water intake, it supports overall hydration status, helps maintain electrolyte balance, and assists in promoting effective pulmonary hygiene. In summary, the recommendation to increase water intake is based on the need to enhance mucus clearance and support respiratory function in children with cystic fibrosis during illness. This proactive approach benefits their overall health and mitigates complications associated with dehydration and thickened mucus.

8. What is the recommended suction pressure for infants and children up to 24 months?

A. 100-120 mmHg

B. 80-100 mmHg

C. 60-80 mmHg

D. 120-140 mmHg

The recommended suction pressure for infants and children up to 24 months is 80-100 mmHg. This range is considered safe and effective for clearing secretions without causing trauma to the delicate tissues in the airway of young children. It allows healthcare providers to remove mucus and other obstructions effectively while minimizing the risk of adverse effects such as irritation or damage to the respiratory tract. Younger patients, particularly infants, have more fragile airways and tissues, so a suction pressure that is too high could lead to complications like airway trauma, bleeding, or increased airway resistance. By adhering to the 80-100 mmHg guideline, healthcare professionals can safely manage respiratory distress in this vulnerable age group.

9. Which common pediatric condition is characterized by a barking cough and stridor?

A. Bronchiolitis

B. Asthma

C. Pneumonia

D. Croup

The condition characterized by a barking cough and stridor in children is croup. Croup is primarily caused by viral infections, most commonly the parainfluenza virus, leading to inflammation of the larynx and trachea. The inflammation results in a distinctive "barking" cough, which resembles the sound of a seal, and stridor, a high-pitched wheezing sound that occurs during inhalation due to narrowed airways. This is a classic presentation in young children, who are particularly susceptible to these viral infections. In contrast, bronchiolitis primarily affects the small airways (bronchioles) and typically presents with wheezing and increased respiratory effort due to inflammation and mucus obstruction, rather than the barking cough and stridor associated with croup. Asthma involves reversible airway obstruction and can cause wheezing and coughing, but it does not present with the classic barking cough or stridor. Pneumonia, which is an infection of the lung parenchyma, often presents with cough and difficulty breathing, but again, lacks the characteristic barking cough and stridor seen in croup. Therefore, recognizing the symptoms specific to croup is crucial for proper diagnosis and management.

10. What is the definition of "chronic cough" in pediatrics?

A. A cough persisting for more than 4 weeks

B. A cough occurring only at night

C. A cough that resolves within 7 days

D. A cough only present during exercise

A chronic cough in pediatrics is defined as a cough that persists for more than 4 weeks. This duration is critical in distinguishing a chronic cough from acute coughs, which are generally short-lived and often associated with upper respiratory infections that resolve within a week or two. Chronic cough can signal underlying health issues, such as asthma, allergies, or other respiratory conditions, which require further assessment and management. Understanding this definition is essential for proper diagnosis and treatment, as identifying the nature and duration of a cough helps healthcare providers determine the necessary steps for evaluation and intervention. It's important for pediatric care to differentiate chronic cough from other types because it may indicate a significant and ongoing health concern in children.