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Medical

# **RRT-ACCS**

NBRC Registered Respiratory Therapist Adult Critical Care Specialist (RRT-ACCS)









#### **Question: 489**

A patient with community-acquired pneumonia is started on empiric antibiotic therapy. Which of the following antibiotic regimens provides coverage for the most common pathogens causing community-acquired pneumonia?

- A. Ampicillin-sulbactam
- B. Ceftriaxone
- C. Levofloxacin
- D. Azithromycin plus ceftriaxone

Answer: D

Explanation: Azithromycin plus ceftriaxone provides coverage for the most common pathogens causing community-acquired pneumonia. Azithromycin covers atypical pathogens such as Mycoplasma pneumoniae and Legionella pneumophila, while ceftriaxone covers typical pathogens such as Streptococcus pneumoniae.

#### Question: 490

Which of the following ventilator modes is most appropriate for a patient with severe chronic obstructive pulmonary disease (COPD) and respiratory distress?

- A. Assist-Control Volume Ventilation (ACVV)
- B. Pressure Support Ventilation (PSV)
- C. Synchronized Intermittent Mandatory Ventilation (SIMV)
- D. Pressure Control Ventilation (PCV)

Answer: D

Explanation: Patients with severe COPD and respiratory distress often require a ventilator mode that allows for adequate time for exhalation and minimizes air trapping. Pressure Control Ventilation (PCV) provides control over inspiratory pressure and allows for longer expiratory times, making it suitable for patients with COPD.

#### **Question: 491**

A 70-year-old female with a history of chronic heart failure presents to the emergency department with acute worsening of dyspnea, orthopnea, and bilateral lower extremityedema. On physical examination, she has elevated jugular venous pressure, crackles on lung auscultation, and hepatomegaly. Which of the following is the most likely diagnosis?

- A. Acute exacerbation of chronic obstructive pulmonary disease (COPD)
- B. Pulmonary embolism
- C. Acute respiratory distress syndrome (ARDS)
- D. Acute decompensated heart failure

Answer: D

Explanation: The patient's history of chronic heart failure, acute worsening of dyspnea, orthopnea, bilateral lower extremity edema, elevated jugular venous pressure, crackles on lung auscultation, and hepatomegaly are highly suggestive of acute decompensated heart failure. Acute decompensated heart failure occurs when there is an acute exacerbation of heart failure symptoms, leading to fluid accumulation in the lungs (pulmonary edema) and peripheral edema.

#### Question: 492

A patient with acute respiratory distress syndrome (ARDS) is receiving mechanical ventilation with a high positive end-expiratory pressure (PEEP) strategy. Which of the following is a potential benefit of high PEEP in this

#### patient?

- A. Reduced risk of barotrauma
- B. Improved cardiac output
- C. Decreased pulmonary vascular resistance
- D. Enhanced alveolar recruitment

Answer: D

Explanation: One potential benefit of using a high positive end-expiratory pressure (PEEP) strategy in a patient with acute respiratory distress syndrome (ARDS) is enhanced alveolar recruitment. High PEEP levels help maintain lung volume during expiration, preventing alveolar collapse and promoting lung recruitment. This can improve oxygenation and increase the surface area available for gas exchange.

#### **Question: 493**

When assessing a patient's pulmonary function testing flow-volume curve, what indicator would suggest that the patient may have coughed during the first second of exhale during one of the trials?

- A. A jagged interruption or dip in the curve during exhale
- B. A steep slope of the line during the expiratory phase of the maneuver
- C. An unusually high value for FVC1
- D. A diminished value for FVC1

Answer: A

Explanation: If a patient coughs during the first second of exhale, it can lead to a jagged interruption or dip in the flow-volume curve during that time period. Coughing can cause a sudden decrease in airflow, resulting in an abnormal pattern in the curve. Therefore, option A is the correct indicator to suggest

coughing during the exhalation phase of the maneuver. Options B, C, and D are not directly related to coughing during the first second of exhale and can be considered incorrect choices in this scenario.

#### Question: 494

A patient with neuromuscular disease requires long-term mechanical ventilation. Which of the following ventilator modes is most appropriate for supporting respiratory muscle function and reducing the risk of ventilator-induced diaphragmatic dysfunction?

- A. Assist-control ventilation (ACV)
- B. Pressure support ventilation (PSV)
- C. Synchronized intermittent mandatory ventilation (SIMV)
- D. Proportional assist ventilation (PAV)

Answer: D

Explanation: Proportional assist ventilation (PAV) is the most appropriate ventilator mode for supporting respiratory muscle function and reducing the risk of ventilator-induced diaphragmatic dysfunction in a patient with neuromuscular disease. PAV uses sophisticated algorithms to assist the patient's spontaneous breaths in proportion to their effort. It provides personalized support to match the patient's respiratory drive, promoting diaphragmatic function and improving patient-ventilator synchrony.

### **Question: 495**

Which of the following is an appropriate target range for mean arterial pressure (MAP) in patients with septic shock?

#### A. 40-50 mmHg

B. 60-70 mmHg

C. 80-90 mmHg

D. 100-110 mmHg

Answer: B

Explanation: A target range of 60-70 mmHg for mean arterial pressure (MAP) is appropriate in patients with septic shock. Septic shock is characterized by systemic vasodilation and hypotension, leading to inadequate tissue perfusion. Maintaining an adequate MAP is essential to ensure organ perfusion and oxygen delivery. A target range of 60-70 mmHg is generally recommended in septic shock, although individual patient factors and comorbidities may influence the specific target.

Question: 496

A 40-year-old female with a history of asthma presents to the emergency department with acute dyspnea and wheezing. She has been using her albuterol inhaler every 4 hours without significant relief. Her initial peak expiratory flow rate (PEFR) is 40% of her predicted value. Which of the following is the most appropriatenext step in managing this patient?

- A. Administer a short-acting anticholinergic inhaler (e.g., ipratropium bromide)
- B. Administer intravenous magnesium sulfate
- C. Initiate continuous nebulized albuterol therapy
- D. Administer systemic corticosteroids (e.g., prednisone)

Answer: D

Explanation: The patient's presentation with acute dyspnea, wheezing, and poor response to short-acting bronchodilators suggests a severe exacerbation of asthma. The most appropriate next step in management is to administer systemic corticosteroids (option D) to reduce airway inflammation and improve

symptoms. Systemic corticosteroids are recommended early in the treatment of severe asthma exacerbations. Administering a short-acting anticholinergic inhaler (option A) such as ipratropium bromide can be considered as an adjunctive therapy to bronchodilators but is not the initial step. Intravenous magnesium sulfate (option B) is also an adjunctive treatment option for severe asthma exacerbations but is not the first-line intervention. Continuous nebulized albuterol therapy (option C) may be used in severe exacerbations that do not respond to intermittent nebulized therapy, but systemic corticosteroids are the priority.

#### **Question: 497**

Which of the following is a potential complication of central venous catheter insertion?

A. Arterial puncture

B. Hypernatremia

C. Hypoglycemia

D. Increased platelet count

Answer: A

Explanation: Arterial puncture is a potential complication of central venous catheter insertion. Central venous catheterization involves accessing a large vein, such as the internal jugular, subclavian, or femoral vein, for various indications, including monitoring central venous pressure, administering medications, or obtaining blood samples. However, inadvertent arterial puncture can occur during the procedure, leading to bleeding and hematoma formation. Proper technique, real-time ultrasound guidance, and knowledge of vascular anatomy can help minimize the risk of arterial puncture during central venous catheter insertion.

Question: 498

A 70-year-old male presents with acute-onset confusion, fever, and neck stiffness. On physical examination, he has nuchal rigidity, positive Kernig's sign, and a petechial rash. What is the most likely diagnosis?

- A. Meningitis
- B. Subarachnoid hemorrhage
- C. Migraine headache
- D. Rocky Mountain spotted fever

Answer: D

Explanation: The most likely diagnosis in this patient is Rocky Mountain spotted fever (RMSF). RMSF is a tick-borne infectious disease caused by the bacterium Rickettsia rickettsii. It typically presents with acute-onset fever, headache, myalgias, and a characteristic petechial rash. Neurologic manifestations can occur and may include confusion, neck stiffness, and meningeal signs such as nuchal rigidity and positive Kernig's sign. Meningitis may present with fever, confusion, and neck stiffness, but the petechial rash is more specific to RMSF. Subarachnoid hemorrhage would not typically cause confusion or a petechial rash. Migraine headache would not present with fever, neck stiffness, or a petechial rash. Therefore, option D, Rocky Mountain spotted fever, is the most likely diagnosis.

#### Question: 499

A patient with severe respiratory distress is receiving mechanical ventilation. The arterial blood gas (ABG) results show a pH of 7.28, PaCO<sub>2</sub> of 58 mmHg, and PaO<sub>2</sub> of 70 mmHg. Which of the following ventilator settings should be adjusted to improve oxygenation?

- A. Increase the FiO<sub>2</sub>
- B. Increase the respiratory rate

- C. Decrease the tidal volume
- D. Decrease the PEEP

Answer: A

Explanation: To improve oxygenation in a patient with severe respiratory distress, increasing the fraction of inspired oxygen (FiO<sub>2</sub>) is the appropriate intervention. It helps increase the oxygen concentration delivered to the patient's lungs and subsequently improves the arterial oxygen partial pressure (PaO<sub>2</sub>).

#### **Question: 500**

A patient with acute respiratory distress syndrome (ARDS) is receiving mechanical ventilation with a high positive end-expiratory pressure (PEEP) level. The respiratory therapist is concerned about the risk of ventilator-associated pneumonia (VAP). Which of the following interventions should the therapist implement to reduce the risk of VAP?

- A. Change the ventilator circuit every 24 hours.
- B. Perform routine oral care with an antiseptic solution.
- C. Administer prophylactic antibiotics.
- D. Increase the fraction of inspired oxygen ( $FiO_2$ ).

Answer: B

Explanation: To reduce the risk of ventilator-associated pneumonia (VAP) in a patient receiving mechanical ventilation, the respiratory therapist should implement routine oral care with an antiseptic solution. Maintaining good oral hygiene helps reduce the colonization of bacteria in the oropharynx, which can contribute to the development of VAP. Changing the ventilator circuit every 24 hours is a common practice but is not the most effective intervention for preventing VAP. Administering prophylactic antibiotics is not recommended as

a routine measure for VAP prevention. Increasing the fraction of inspired oxygen (FiO<sub>2</sub>) is not directly related to VAP prevention.

## Question: 501

A patient with acute respiratory distress syndrome (ARDS) is receiving mechanical ventilation with a tidal volume of 6 mL/kg of predicted body weight (PBW). Which of the following is an appropriate strategy to minimize ventilator-induced lung injury (VILI) in this patient?

- A. Increasing the respiratory rate
- B. Decreasing the positive end-expiratory pressure (PEEP)
- C. Limiting the plateau pressure to less than 30 cmH<sub>2</sub>O
- D. Administering inhaled bronchodilators

Answer: C

Explanation: To minimize ventilator-induced lung injury (VILI) in a patient with ARDS, it is important to limit the plateau pressure to less than 30 cmH<sub>2</sub>O. High plateau pressures can lead to barotrauma and further lung injury, so keeping them within a saferange is crucial.

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