IBSC
FP-C
Flight Paramedic Certification

Latest Version: 7.0

Question: 1

The air medical transport crew is en route to pick up a patient diagnosed with Syndrome of Inappropriate Antidiuretic Hormone (SIADH) for transport. Which of the following treatment modalities should the medical crew be prepared to administer to this patient?

A. An IV dose of furosemide
B. An IV infusion of 3% saline solution
C. An injection of desmopressin acetate
D. An IV infusion of vasopressin

Answer: B

Explanation:
In SIADH, excess antidiuretic hormone (ADH) causes the kidneys to retain water, leading to decreased urine output, dilutional hyponatremia (low sodium levels), and low serum osmolality. Patients with severe hyponatremia (serum sodium < 125 mEq/L) are at risk for complications like confusion, seizures, and even cerebral edema. The standard treatment for severe hyponatremia is an intravenous infusion of hypertonic saline (typically 3% saline) to gradually correct sodium levels and reduce the risk of neurologic damage. The infusion is carefully controlled to avoid rapid sodium correction, which can lead to complications such as osmotic demyelination syndrome.
Desmopressin acetate (DDAVP) is used to treat conditions like diabetes insipidus, where there is a deficiency of ADH, and is not appropriate for SIADH, which involves excess ADH.
Vasopressin is another name for ADH and would worsen the condition by increasing water retention.
Furosemide (a loop diuretic) may be used adjunctively in some cases to help excrete excess water, but it is not the primary treatment and is typically not administered without hypertonic saline in SIADH.

Question: 2

You are the team leader transporting a pulseless three-year-old male patient in Torsades de Pointes. High-quality CPR is in progress. His baseline-corrected QT interval on a 12-lead ECG is prolonged. He has received one dose of EPINEPHrine (0.01 mg/kg) but remains in Torsades de Pointes. What is the best next step?

A. Administer a second dose of EPINEPHrine 0.01 mg/kg IV/IO.
B. Administer magnesium sulfate 25-50 mg/kg IV/IO.
C. Perform synchronized cardioversion.
D. Administer amiodarone 5 mg/kg IV/IO.

Answer: B

Explanation:
The best next step is to administer magnesium sulfate 25-50 mg/kg IV/IO (maximum single dose 2 grams). Magnesium sulfate is the first-line treatment for Torsades de Pointes, particularly in the presence of a prolonged QT interval, as it stabilizes myocardial cells and corrects the underlying electrolyte disturbances causing the arrhythmia. This treatment is effective even in pulseless Torsades and should be administered promptly after CPR and EPINEPHrine have been initiated.
Amiodarone is not the first-line treatment for Torsades de Pointes and may actually prolong the QT interval, worsening the condition. A second dose of EPINEPHrine may be considered in pulseless arrest, but addressing the underlying cause of Torsades (QT prolongation) with magnesium sulfate takes priority. Synchronized cardioversion is contraindicated in a pulseless patient; defibrillation is used for pulseless ventricular tachycardia or fibrillation but is less effective in Torsades without addressing the underlying problem.

Question: 3

Which of the following statements regarding burn patients experiencing third-spacing is most accurate?

A. Cardiac output is increased in patients with third-spacing.
B. Patients experiencing third spacing are hypovolemic.
C. The edema associated with third-spacing results from fluid overload.
D. Third-spacing is best treated by the administration of crystalloid solution.

Answer: B

Explanation:
Patients experiencing third spacing are hypovolemic. Third-spacing occurs when fluid shifts from the intravascular space (inside blood vessels) to the interstitial or extravascular space, leading to relative hypovolemia. This is common in severe burns, where capillary permeability increases, allowing fluid to leak out of the blood vessels. Even though the patient may appear swollen due to edema, the circulating blood volume is reduced, resulting in hypovolemia and decreased cardiac output.
Edema from the third spacing does not result from fluid overload but from fluid loss in tissues.
Treatment with crystalloid solutions alone may not be sufficient; colloids or other large-molecule solutions are often needed to help restore oncotic pressure and return fluid to the intravascular space.
Cardiac output decreases in third-spacing because of reduced blood volume, not increased.

Question: 4

The 12-lead ECG criteria for evaluating LVH include all the following except:

A. Any precordial lead of 45mm or higher
B. An R wave in Lead I of 12 mm or more
C. An R wave in V5 or V6 > 35 mm
D. An R wave in lead aVF of 20 mm or more

Answer: C

Explanation:
Various ECG criteria are used to diagnose Left Ventricular Hypertrophy (LVH). The more criteria that are present, the more likely that the patient has LVH. These criteria include:
• Any precordial lead of 45mm or higher
• An R wave in Lead aVL of 11mm or more
• An R wave in Lead I of 12 mm or more
• An R wave in lead aVF of 20 mm or more
Additionally, if the sum of the tallest R wave in V5 or V6 and the deepest S wave in V1 or V2 is 35 mm or more, LVH is likely.

Question: 5

What is the correct ETT size for a 4-year-old, 19 kg patient?

A. 5.0
B. 6.0
C. 3.0
D. 4.0

Answer: A

Explanation:
The equation for calculating pediatric Endotracheal Tube (ETT) size is (16 + age in years) / 4. We would calculate the ETT size for this patient as follows:
(16 + 4) / 4
20 / 4 = 5
This patient would need an ETT sized 5.0.

Question: 6

The medical crew of an air transport program is treating a patient in DKA and has administered an insulin bolus of 0.1 units/kg. They are preparing a continuous infusion of insulin at 0.1 units/kg/hour. What should the target decrease in blood glucose level be per hour?

A. 25–50 mg/dL per hour
B. 50–75 mg/dL per hour
C. 75–100 mg/dL per hour
D. 100–150 mg/dL per hour

Answer: B

Explanation:
The goal of insulin therapy in diabetic ketoacidosis (DKA) is to safely decrease blood glucose levels without causing hypoglycemia or rapid fluid shifts that can lead to cerebral edema. The recommended target is a decrease of 50–75 mg/dL per hour. This rate allows for gradual correction of hyperglycemia while avoiding complications associated with more aggressive reductions.

A target of 25–50 mg/dL per hour is too conservative and may delay resolution of DKA, prolonging acidosis and ketosis.
A target of 75–100 mg/dL per hour risks inducing fluid shifts and cerebral edema, especially in pediatric or critically ill patients.
A target of 100–150 mg/dL per hour is excessively aggressive and increases the likelihood of hypoglycemia and cerebral edema, making it unsafe for DKA management.

Question: 7

Your patient is the victim of an explosion at a gas station. You note shrapnel in the patient's thigh, abdomen, and shoulder. Which type of blast injury caused the shrapnel injuries to this patient?

A. Secondary
B. Quaternary
C. Tertiary
D. Primary

Answer: A

Explanation:
Blast injuries occur in five different stages. The primary stage occurs due to the pressure blast from the explosion. Gas-filled structures such as the lungs and GI tract are most affected in this stage, possibly resulting in abdominal perforation and pulmonary barotrauma. The secondary stage happens when shrapnel strikes the victim. Acceleration and deceleration injuries occur in the tertiary stage when the victim is blown back by the wind from the blast. Fractures, traumatic brain injury, and further soft tissue injury can occur at this time. The quaternary stage occurs when the heat from the blast hits the patient and causes thermal injury. Finally, the last stage, called the quinary stage, causes injury through the chemical, biologic, radiologic, and nuclear effects after the blast.

Question: 8

Motor vehicle rear-end collisions frequently cause all the following except:

A. T12 fractures
B. C2 fractures
C. Skull Fractures
D. L1 fractures

Answer: C

Explanation:
Rear-end collisions frequently cause T12 to L1 fractures, C2 fractures, and soft tissue neck injuries. Skull fractures are frequently seen in head-on collisions.

Question: 9

You are transporting a 70-kg, mechanically ventilated COPD patient. The ventilator settings are assist-control mode, Vt 420 mL, RR 10, I:E 1:2, FiO_2 0.6, PEEP 5. What change would the flight paramedic consider making due to the pathophysiology of the underlying disorder?

A. Adjust PEEP to 7.5
B. Adjust the FiO2 to 1.0
C. Adjust RR to 16
D. Adjust I:E to 1:4

Answer: D

Explanation:
When using ventilator therapy for a COPD patient, the critical care paramedic should use I:E ratio of 1:4 to minimize air trapping and help prevent auto-PEEP. The longer expiratory time does increase the risk of atelectasis, so close monitoring is required. Abnormal I:E ratios can be uncomfortable, so increased sedation may be necessary.
The recommended respiratory rate for obstructive lung disease is slightly slower than normal at 10–12 breaths per minute, so the current respiratory rate is correct. Increasing FiO2 is not indicated based on the underlying pathophysiology alone; oxygenation status needs to be considered as well. There are also no indications that PEEP needs adjustment.

Question: 10

In a Just Culture, which of these is not one of the goals that results when disclosing errors?

A. Addressing the error with the patient and their family
B. Practice changes
C. Care plans
D. Disciplinary action

Answer: D

Explanation:
The goal of Just Culture is not to blame or discipline but to allow for a safe culture where errors can be disclosed and accountability held without fear of retribution.
A Just Culture "defines and differentiates behaviors and provides guidelines on how to deal with each type of behavior, to manage risk and prevent adverse outcomes, such as incidents and accidents."
Disclosure of errors should result in changes in practice and care plans that prevent future errors and addressing the error in full of the patient and their family.

Question: 11

Which term best describes the ability of researchers to limit the influence of variables that are not currently being tested?

A. Validity
B. Reliability
C. Control
D. Generalizability

Answer: C

Explanation:
Control refers to the process researchers use to limit or account for extraneous variables that might influence the outcome of the study. By managing these variables, researchers ensure that the results are primarily attributable to the independent variable being tested.
Reliability (Distractor 1) pertains to the consistency of a measurement or test over time or across different observers, not the management of extraneous variables.
Validity (Distractor 2) refers to how well a test or study measures what it claims to measure, rather than the ability to control extraneous factors.
Generalizability (Distractor 3) is the extent to which the findings of a study can be applied to broader contexts or populations, not the control of variables within the study.

Question: 12

You are responding to a two-year-old female with difficulty breathing. The child's parents explain that she has been sick for a few days but has had increased difficulty breathing today. She presents with wheezing, retractions, noisy breathing, and tachypnea. Which of the following is the patient likely to experience?

A. Epiglottitis
B. Foreign body airway obstruction
C. Asthma
D. Bronchiolitis

Answer: D

Explanation:
The patient is likely experiencing bronchiolitis, which is a viral infection that causes inflammation of the lower airways, typically due to Respiratory Syncytial Virus (RSV). Bronchiolitis is common in children under two years old and presents with wheezing, retractions, increased mucus production, and tachypnea. Treatment focuses on maintaining adequate oxygenation, using nasal cannula, high-flow nasal cannula, or positive pressure ventilation if needed, and suctioning the airway to remove secretions.
Asthma in children under three is often referred to as reactive airway disease, but the history of illness and the patient's age point more toward bronchiolitis. Foreign body airway obstruction usually presents with sudden-onset symptoms like choking, stridor, or coughing rather than a gradual onset of respiratory distress. Epiglottitis typically presents with high fever, drooling, difficulty swallowing, and a muffled voice, along with a tripod position in severe cases, rather than wheezing.

Question: 13

A 55-year-old female was transported for emergency care after experiencing "the worst headache of my life." The patient's spouse reported to the transport provider that their spouse had been bending over and picking up heavy boxes, as they had been preparing for an upcoming move. Based on the information provided in the scenario, which of the following types of intracranial bleeding is the patient is most likely to have experienced?

A. Subarachnoid hemorrhage
B. Subdural hematoma
C. Intracerebral hemorrhage
D. Epidural hematoma

Answer: A

Explanation:
A subarachnoid hemorrhage is bleeding in the subarachnoid space, between the pia mater and arachnoid membrane. Patients with a Subarachnoid Hemorrhage (SAH), who are conscious at the time of receiving emergency medical care, often report their current symptoms as "the worst headache of my life." SAH may result in response to head trauma or may be spontaneous. Patients with SAH will have signs and symptoms of loss of consciousness, nausea, vomiting, photophobia, and nuchal rigidity. Untreated, SAH can lead to coma or death due to increased intracranial pressure.
Subdural hematoma presents with a slowly developing headache. Epidural hematoma presents with a loss of consciousness, followed by a period of lucidity and another loss of consciousness. Intracerebral hemorrhage will range from asymptomatic to deep coma depending on the location and severity of the underlying hematoma.

Question: 14

A 38-week-gestation pregnant patient was retrieved from the field for transport due to Umbilical Cord Prolapse (UCP). The transport team places the Fetal Heart Rate (FHR) monitor and notes recurrent moderate decelerations in the FHR. All the following position change interventions are appropriate in this scenario, except:

A. Position the patient in a knee-chest position.
B. Position the maternal patient in Trendelenburg position.
C. Position the maternal patient in an exaggerated Sims position with head down.
D. Position the patient's supine and displace the uterus manually to the left.

Answer: D

Explanation:
The presence of a prolapsed umbilical cord is a medical emergency requiring immediate intervention to preserve the life of the fetus. A prolapsed cord may occur for a number of reasons, including Premature Rupture of Membranes (PROM), polyhydramnios, longer than normal cord, multiparity, multiple gestation pregnancy, maternal age ≥ 35, history of recent amniotomy, no engagement of fetal part, male sex of the fetus, or any of several obstetric procedures including attempts to change the fetal position or strategies to produce cervical ripening and dilation.
Umbilical Cord Prolapse (UCP) may appear as a frank presentation of the cord, visible on the perineum or protruding from the vagina, or it may be occult, presenting alongside the fetal presenting part and obscured. And, while in some instances, the fetus does not show any evidence of distress with UCP, in the vast majority of instances of UCP (nearly 70%), the fetus experiences some degree of asphyxia which is evidenced by fetal bradycardia and recurrent variable decelerations on the EFM. Transport providers should reposition the maternal patient in an attempt to relieve pressure from the presenting part on the umbilical cord. The pregnant female may be positioned in a steep Trendelenburg, in an exaggerated Sims position with the maternal head down, or in a knee-chest position. If necessary, a member of the medical transport crew may be required to place two (sterile) gloved fingers into the cervical opening in an attempt to further buffer the prolapsed UC from uterine contraction pressure.
Manually displacing the uterus to the left with the pregnant patient lying supine is used when the patient is showing signs of inferior vena cava syndrome.

Question: 15

Which of the following is not a physiologic change in pregnancy?

A. Increased pH
B. Hematocrit decreases
C. Increased respiratory rate
D. Decrease in cardiac output

Answer: D

Explanation:
During pregnancy, cardiac output increases 30-50% to ensure proper fetal circulation.

Hematocrit does decrease in pregnancy due to increased plasma volume. The respiratory rate increases during pregnancy. Due to increased respiratory rate, the pH becomes alkalotic due to blowing off more CO2.

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