

Intravenous (IV) Therapy Practice Exam (Sample)

Study Guide



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SAMPLE

Questions

SAMPLE

- 1. What is the main advantage of intravenous (IV) therapy for medication delivery?**
 - A. It can be administered orally for ease of use**
 - B. It allows for rapid effects by delivering medications directly into the bloodstream**
 - C. It minimizes the risk of infection**
 - D. It is more cost-effective than other routes**
- 2. What is a key feature of electronic infusion devices?**
 - A. They administer medication through gravity only**
 - B. They have alarms for low IV bag, air in tubing, and occlusions**
 - C. They only use primary administration sets**
 - D. They change every 72 hours**
- 3. Which of the following describes phlebitis during IV therapy?**
 - A. Inflammation of the vein**
 - B. Leakage of IV fluids**
 - C. Powerful muscle contraction**
 - D. Accumulation of blood at the IV site**
- 4. In a PICC line, where does the tip of the catheter typically reside?**
 - A. In the basilic vein**
 - B. In the jugular vein**
 - C. In the inferior vena cava**
 - D. In the superior vena cava**
- 5. What type of catheter is a PICC?**
 - A. A short peripheral catheter**
 - B. A midline peripheral catheter**
 - C. A centrally inserted catheter**
 - D. A peripherally inserted central venous catheter**

- 6. What is the primary function of a primary IV administration set?**
- A. Used to give medications through a catheter**
 - B. Infusing primary IV fluid by gravity or electronic pump**
 - C. Providing intermittent medication administration**
 - D. Administering exact amounts of fluid**
- 7. What can cause phlebitis during the insertion of an IV catheter?**
- A. Poor aseptic technique**
 - B. Excessive fluid volume**
 - C. Frequent tube changes**
 - D. Improper needle gauge**
- 8. What is the primary fluid movement observed with hypotonic solutions?**
- A. Movement of fluid into the vascular compartment**
 - B. Movement of water into the cell**
 - C. Even distribution of fluid across compartments**
 - D. Fluid retention in the interstitial space**
- 9. Which condition involves inflammation of a vein?**
- A. Infiltration**
 - B. Phlebitis**
 - C. Extravasation**
 - D. Fluid overload**
- 10. Which type of solution is used to draw water into the cells?**
- A. Hypertonic solution**
 - B. Isotonic solution**
 - C. Colloid solution**
 - D. Hypotonic solution**

Answers

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

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Explanations

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1. What is the main advantage of intravenous (IV) therapy for medication delivery?

- A. It can be administered orally for ease of use
- B. It allows for rapid effects by delivering medications directly into the bloodstream**
- C. It minimizes the risk of infection
- D. It is more cost-effective than other routes

The main advantage of intravenous (IV) therapy for medication delivery lies in its ability to provide rapid effects by delivering medications directly into the bloodstream. This method ensures that the medication reaches its target site quickly and achieves the desired therapeutic effect almost immediately. As drugs administered through the IV route bypass several barriers that oral medications encounter—such as digestion, absorption, and first-pass metabolism—they can produce their effects much more swiftly and with greater precision in dosing. In acute care settings, such as emergency rooms or during surgical procedures, the ability to administer medications quickly can be life-saving. IV therapy is particularly crucial for administering medications that require immediate effect, such as pain relief, emergency drugs, or fluids in cases of dehydration or shock. Other routes of medication delivery, such as oral or intramuscular, generally take longer to exert their effects as they involve metabolic processes before reaching systemic circulation. Thus, the rapid onset of action is a significant benefit of IV therapy.

2. What is a key feature of electronic infusion devices?

- A. They administer medication through gravity only
- B. They have alarms for low IV bag, air in tubing, and occlusions**
- C. They only use primary administration sets
- D. They change every 72 hours

A key feature of electronic infusion devices is their ability to enhance patient safety through the use of alarms. These alarms notify healthcare providers of critical issues, such as a low IV bag, air in the tubing that could lead to an embolism, and occlusions that may impede the flow of medication. This technology ensures that any potential complications are addressed promptly, providing real-time monitoring and reducing the risk of human error in medication administration. While other options describe aspects of intravenous therapy, they do not capture the distinctive benefits and functionalities that electronic infusion devices offer in terms of automated safety features and monitoring capabilities. The emphasis on alarms is what sets these devices apart in managing intravenous therapy effectively.

3. Which of the following describes phlebitis during IV therapy?

- A. Inflammation of the vein**
- B. Leakage of IV fluids**
- C. Powerful muscle contraction**
- D. Accumulation of blood at the IV site**

Phlebitis is specifically defined as the inflammation of a vein, particularly one that has been used for intravenous therapy. This condition can occur due to various factors such as irritation from the catheter, the solution being infused, or the mechanical trauma caused by the insertion of the IV needle. Recognizing phlebitis is crucial for patient safety and comfort, as it can lead to complications if not addressed promptly. Proper management includes identifying early signs and symptoms such as redness, swelling, warmth, and pain at the IV site. The other options, while related to IV therapy complications, do not accurately describe phlebitis. Leakage of IV fluids refers to extravasation, which involves fluid escaping into the surrounding tissue rather than the vein itself. Powerful muscle contraction pertains more to muscular responses rather than vein inflammation, and accumulation of blood at the IV site typically indicates a hematoma rather than phlebitis. Understanding these distinctions is essential for effective IV therapy practice and ensuring optimal patient outcomes.

4. In a PICC line, where does the tip of the catheter typically reside?

- A. In the basilic vein**
- B. In the jugular vein**
- C. In the inferior vena cava**
- D. In the superior vena cava**

The tip of a PICC (Peripherally Inserted Central Catheter) line typically resides in the superior vena cava. This positioning is essential because it allows for optimal blood flow and dilutes the infused medications rapidly in the bloodstream, preventing localized irritation and ensuring effective delivery of fluids and medications. The superior vena cava is the large vein that carries deoxygenated blood from the upper body to the heart. By placing the catheter tip here, complications are minimized, and it's easier to monitor the effectiveness of treatment, especially for long-term therapies. This is particularly important for patients requiring extended intravenous therapy, as the superior vena cava can accommodate the large volume of blood flow without the risk of thrombosis that might occur if the catheter tip were placed in a peripheral vein or other locations. In contrast to the superior vena cava, other options like the basilic vein and jugular vein are not common destinations for a PICC line due to potential complications such as phlebitis or the risk of puncturing small veins. The inferior vena cava is lower in the body than the most appropriate placement location for a PICC, which aims for a higher placement in order to facilitate better drug circulation.

5. What type of catheter is a PICC?

- A. A short peripheral catheter
- B. A midline peripheral catheter
- C. A centrally inserted catheter
- D. A peripherally inserted central venous catheter**

A peripherally inserted central venous catheter (PICC) is a specialized type of catheter used for extended venous access. It is inserted into a peripheral vein, typically in the arm, and threaded through to a central vein near the heart, allowing for the delivery of medications, nutrients, and blood products, or for blood sampling. This type of catheter is particularly beneficial for patients who require long-term intravenous therapy (greater than a week), as it minimizes the risks associated with repeated venipuncture. The PICC can remain in place for weeks to months, making it an ideal choice for patients undergoing treatments such as chemotherapy or extended antibiotic therapy. Understanding the structure and function of a PICC compared to other catheter types helps clarify its unique role in intravenous therapy. The distinction between PICC and other options, such as short peripheral catheters or midline catheters, lies in its ability to access central veins for high-flow or irritating medications, which those other types do not accommodate effectively.

6. What is the primary function of a primary IV administration set?

- A. Used to give medications through a catheter
- B. Infusing primary IV fluid by gravity or electronic pump**
- C. Providing intermittent medication administration
- D. Administering exact amounts of fluid

The primary function of a primary IV administration set is to infuse primary IV fluid, which can be done using either gravity or an electronic pump. This set is integral to delivering a continuous flow of fluids and electrolytes to the patient, which is essential for maintaining hydration, blood pressure, and overall homeostasis. Using gravity allows for a straightforward method of infusion, where the height of the IV bag can control the flow rate. Alternatively, electronic pumps can provide a more precise and controlled delivery of fluids, ensuring that specific volumes are administered over a designated period. This method is crucial in various clinical settings where patients may need constant support or volume replacement. The other options, while associated with IV therapy, do not accurately reflect the primary purpose of this particular equipment. For instance, administering medications through a catheter is typically associated with secondary sets or IV push techniques rather than the primary administration set. Intermittent medication administration would also generally use a different system, as it requires variation in flow and is typically paired with saline locks or secondary sets. Administering exact amounts of fluid pertains more to the functionality of pumps and specialized equipment rather than being the primary role of an administration set itself.

7. What can cause phlebitis during the insertion of an IV catheter?

- A. Poor aseptic technique**
- B. Excessive fluid volume**
- C. Frequent tube changes**
- D. Improper needle gauge**

Phlebitis, which is the inflammation of a vein, can occur during the insertion of an IV catheter due to various factors, with poor aseptic technique being a significant contributor. When aseptic technique is not properly followed, there is an increased risk of introducing pathogens into the bloodstream through the catheter insertion site. This can lead to infection and inflammation, resulting in phlebitis. Inadequate hand hygiene, failing to use sterile equipment, or not properly cleaning the injection site can facilitate the growth of bacteria, thus increasing the risk of phlebitis. Therefore, maintaining strict aseptic technique during the insertion and care of IV catheters is crucial to prevent this complication. While factors like excessive fluid volume, frequent tube changes, and improper needle gauge can contribute to complications in IV therapy, they do not directly cause phlebitis in the same way that poor aseptic technique does.

8. What is the primary fluid movement observed with hypotonic solutions?

- A. Movement of fluid into the vascular compartment**
- B. Movement of water into the cell**
- C. Even distribution of fluid across compartments**
- D. Fluid retention in the interstitial space**

Hypotonic solutions have a lower concentration of solutes compared to the intracellular fluid within the cells. When a hypotonic solution is introduced to the body, the osmotic gradient created causes water to move from the extracellular space into the cells in an attempt to equalize the solute concentrations between the inside and the outside of the cells. This results in cells swelling as they take in excess water. This process can lead to significant changes in cell volume and can have physiological consequences, especially in certain situations where rapid movement of fluid into cells occurs. Understanding how hypotonic solutions affect fluid movement is essential in managing IV therapy, ensuring that patients receive the appropriate type of fluid to address their medical needs effectively.

9. Which condition involves inflammation of a vein?

- A. Infiltration**
- B. Phlebitis**
- C. Extravasation**
- D. Fluid overload**

Phlebitis is the condition characterized specifically by inflammation of a vein. This inflammation can occur due to various factors, such as trauma to the vein, infection, or irritation from intravenous catheter placement or the infusion of certain medications. The symptoms of phlebitis may include redness, swelling, warmth, and pain along the affected vein. Infiltration refers to the leakage of intravenous fluid into the surrounding tissue, which can cause swelling and discomfort but does not pertain to inflammation of the vein itself. Extravasation involves the escape of intravenous drugs or fluids into the surrounding tissue, often leading to more significant injury than infiltration, particularly with vesicant medications, but it too does not specifically denote inflammation of a vein. Fluid overload is a condition that occurs when excessive fluid is administered into the bloodstream, leading to complications such as edema and cardiovascular strain, but it does not relate to vein inflammation. Thus, phlebitis distinctly connects to the inflammation of a vein, making it the correct choice.

10. Which type of solution is used to draw water into the cells?

- A. Hypertonic solution**
- B. Isotonic solution**
- C. Colloid solution**
- D. Hypotonic solution**

A hypotonic solution is used to draw water into the cells because it has a lower concentration of solutes compared to the inside of the cell. When a cell is placed in a hypotonic solution, water moves from the area of lower solute concentration (the solution) to the area of higher solute concentration (inside the cell) through osmosis. This influx of water causes the cell to swell and can eventually lead to cell lysis if too much water enters. In contrast, a hypertonic solution contains a higher concentration of solutes, which would cause water to exit the cells, leading to cell shrinkage. An isotonic solution has an equal concentration of solutes inside and outside the cell, so there is no net movement of water, maintaining the cell's normal state. A colloid solution consists of larger particles suspended in fluid and does not primarily affect the osmotic movement of water into the cell in the same way that hypotonic solutions do. This understanding is crucial for IV therapy, as the choice of solution directly influences cell hydration and function.