

HESI Dosage Calculations Practice Exam (Sample)

Study Guide



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SAMPLE

Questions

- 1. A client is prescribed alprazolam at 0.75 mg PO. If this is available as 0.5 mg scored tablets, how many tablets should the nurse administer?**
 - A. 2 tablets**
 - B. 1 tablet**
 - C. 1.5 tablets**
 - D. 0.5 tablets**

- 2. A client with trigeminal neuralgia reports frequent use of acetaminophen (Tylenol). What lab result would indicate potential toxicity?**
 - A. Sodium of 140 mEq/L**
 - B. Prothrombin time of 12 seconds**
 - C. Platelet count of 400,000 cells/mm³**
 - D. A direct bilirubin level of 2 mg/dL**

- 3. How many ml/hour should a nurse administer for Heparin Sodium 25,000 Units in 500 ml IV at 1,000 unit/hour after a decrease of 100 units/hour?**
 - A. 16 ml/hour**
 - B. 18 ml/hour**
 - C. 20 ml/hour**
 - D. 22 ml/hour**

- 4. Before administering amlodipine, which vital signs are crucial for monitoring?**
 - A. Respiratory rate and temperature.**
 - B. Blood pressure and heart rate.**
 - C. Heart rate and respiratory rate.**
 - D. Level of consciousness and blood pressure.**

- 5. What is the main purpose of administering acetylsalicylic acid (aspirin) to a client?**
 - A. To reduce inflammation**
 - B. To reduce fever**
 - C. To prevent blood clots**
 - D. To relieve pain**

- 6. Which laboratory value should a nurse specifically monitor for a client receiving tamoxifen?**
- A. Glucose level**
 - B. Calcium level**
 - C. Potassium level**
 - D. Prothrombin time**
- 7. A nurse is reviewing the record of a client who has been prescribed baclofen (Lioresal). Which of the following disorders, if noted in the client's history, would alert the nurse to contact the health care provider?**
- A. Seizure disorders**
 - B. Hyperthyroidism**
 - C. Diabetes mellitus**
 - D. Coronary artery disease**
- 8. What symptom indicates a cholinergic crisis in a client with myasthenia gravis?**
- A. Ataxia**
 - B. Mouth sores**
 - C. Hypotension**
 - D. Hypertension**
- 9. A client is receiving meperidine hydrochloride (Demerol) for pain. Which of the following are side effects of this medication? Select all that apply.**
- A. Diarrhea**
 - B. Tremors**
 - C. Drowsiness**
 - D. Hypotension**
- 10. When should sucralfate (Carafate) be administered to a client with a gastric ulcer?**
- A. With meals and at bedtime**
 - B. Every 6 hours around the clock**
 - C. One hour after meals and at bedtime**
 - D. One hour before meals and at bedtime**

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. A client is prescribed alprazolam at 0.75 mg PO. If this is available as 0.5 mg scored tablets, how many tablets should the nurse administer?

A. 2 tablets

B. 1 tablet

C. 1.5 tablets

D. 0.5 tablets

To determine the correct number of tablets to administer, you start by calculating the total dosage needed and how that aligns with the available tablet strength. The prescribed dosage is 0.75 mg of alprazolam, and the available tablets are 0.5 mg each. To find out how many tablets are necessary, divide the total dosage required (0.75 mg) by the strength of one tablet (0.5 mg): $0.75 \text{ mg} \div 0.5 \text{ mg/tablet} = 1.5 \text{ tablets}$. This calculation shows that the dose prescribed requires one and a half tablets. Hence, the correct administration would involve giving 1.5 tablets to meet the exact dosage of alprazolam the client has been prescribed.

2. A client with trigeminal neuralgia reports frequent use of acetaminophen (Tylenol). What lab result would indicate potential toxicity?

A. Sodium of 140 mEq/L

B. Prothrombin time of 12 seconds

C. Platelet count of 400,000 cells/mm³

D. A direct bilirubin level of 2 mg/dL

When considering potential toxicity from acetaminophen, it's crucial to look at liver function tests and specific indicators of liver damage. Acetaminophen overdose is known to lead to hepatotoxicity, which can manifest in elevated levels of liver enzymes and alterations in bilirubin levels. A direct bilirubin level indicates the liver's ability to conjugate and excrete bilirubin. In the case of acetaminophen toxicity, the liver's function may be impaired, leading to an accumulation of bilirubin. A direct bilirubin level of 2 mg/dL suggests that there could be a liver dysfunction or damage, as normal direct bilirubin levels are typically less than 0.3 mg/dL. Thus, an elevated direct bilirubin level serves as a crucial lab result indicating that the client might be experiencing toxicity from acetaminophen, highlighting the importance of monitoring liver function in patients who frequently use this medication.

3. How many ml/hour should a nurse administer for Heparin Sodium 25,000 Units in 500 ml IV at 1,000 unit/hour after a decrease of 100 units/hour?

A. 16 ml/hour

B. 18 ml/hour

C. 20 ml/hour

D. 22 ml/hour

To determine the correct infusion rate in mL/hour for Heparin Sodium, we start by considering the total concentration of the solution and the required dosage. You have a total of 25,000 Units of Heparin in 500 mL of IV solution. First, we need to calculate the concentration of Units per mL: $\text{Concentration} = \frac{25,000 \text{ Units}}{500 \text{ mL}} = 50 \text{ Units/mL}$. Next, the prescribed infusion rate is 1,000 Units/hour. To find the corresponding flow rate in mL/hour, you can use the concentration of the solution. To calculate the required mL/hour for a dosage of 1,000 Units/hour: $\text{mL/hour} = \frac{\text{Desired dose (Units/hour)}}{\text{Concentration (Units/mL)}}$. Plugging in the numbers: $\text{mL/hour} = \frac{1,000 \text{ Units/hour}}{50 \text{ Units/mL}} = 20 \text{ mL/hour}$. Now taking into account the decrease of

4. Before administering amlodipine, which vital signs are crucial for monitoring?

A. Respiratory rate and temperature.

B. Blood pressure and heart rate.

C. Heart rate and respiratory rate.

D. Level of consciousness and blood pressure.

Monitoring blood pressure and heart rate is crucial before administering amlodipine, as this medication is a calcium channel blocker primarily used to treat hypertension and angina. Amlodipine works by relaxing the blood vessels, which leads to a decrease in blood pressure. Therefore, it is essential to check the patient's blood pressure to ensure it is within an acceptable range before administering the medication to prevent hypotension, which can result from excessive lowering of blood pressure. Additionally, heart rate should be monitored because amlodipine can also affect heart rate. In some cases, the medication may lead to bradycardia (a slower than normal heart rate). By assessing these two vital signs, healthcare providers can make informed decisions regarding the administration of the drug, adjusting doses if necessary, or delaying treatment if the patient's parameters are not stable. This careful monitoring helps to ensure patient safety and effective management of their condition.

5. What is the main purpose of administering acetylsalicylic acid (aspirin) to a client?

- A. To reduce inflammation**
- B. To reduce fever**
- C. To prevent blood clots**
- D. To relieve pain**

The main purpose of administering acetylsalicylic acid, commonly known as aspirin, to a client is to prevent blood clots. Aspirin works as an antiplatelet agent, meaning it inhibits the aggregation of platelets in the blood. This action is particularly beneficial for individuals at risk of thrombotic events, such as heart attacks or strokes. By disrupting the process of clot formation, aspirin helps maintain blood flow and reduces the likelihood of dangerous clots developing in the arteries or veins. While aspirin can indeed reduce inflammation, lower fever, and relieve pain, its role as an antiplatelet medication is a significant aspect of its therapeutic use, especially in cardiovascular disease prevention. This characteristic is why aspirin is often prescribed in low doses for individuals with a history of cardiovascular issues or those at high risk, making blood clot prevention a primary reason for its administration.

6. Which laboratory value should a nurse specifically monitor for a client receiving tamoxifen?

- A. Glucose level**
- B. Calcium level**
- C. Potassium level**
- D. Prothrombin time**

The correct answer is monitoring calcium levels for a client receiving tamoxifen. Tamoxifen is an anti-estrogen medication commonly prescribed for certain types of breast cancer. One of the side effects associated with tamoxifen treatment is the potential impact on calcium metabolism. Tamoxifen can cause alterations in calcium levels, leading to hypercalcemia in some patients. Therefore, it is crucial for healthcare providers, including nurses, to regularly assess calcium levels to ensure that they remain within a normal range and to prevent complications associated with imbalanced calcium levels. Monitoring glucose, potassium, or prothrombin time is less relevant in this specific context. While a patient's overall health and pre-existing conditions may require these values to be monitored, they are not the primary laboratory values of concern when a patient is receiving tamoxifen therapy. Monitoring calcium levels helps in managing the specific risks associated with tamoxifen treatment, ensuring better patient outcomes.

7. A nurse is reviewing the record of a client who has been prescribed baclofen (Lioresal). Which of the following disorders, if noted in the client's history, would alert the nurse to contact the health care provider?

A. Seizure disorders

B. Hyperthyroidism

C. Diabetes mellitus

D. Coronary artery disease

Baclofen is a muscle relaxant commonly used to treat muscle spasticity. However, it can lower the seizure threshold, which makes it particularly concerning for clients with a history of seizure disorders. If a client has a seizure disorder, the use of baclofen could potentially exacerbate their condition, leading to an increase in the frequency or severity of seizures. This connection highlights the importance of careful medication management in patients with underlying conditions that could be worsened by pharmacological interventions. In this case, alerting the health care provider is crucial to ensure that the client receives appropriate monitoring and possible adjustments to their treatment plan to minimize risks associated with seizure activity. In contrast, the other disorders listed—hyperthyroidism, diabetes mellitus, and coronary artery disease—do not present the same level of risk concerning the use of baclofen. While they may have their own considerations for treatment and management, they do not directly interfere with the medication's effects on seizure activity. Thus, the nurse's need to contact the health care provider is primarily prompted by concerns about potential seizures in clients taking baclofen.

8. What symptom indicates a cholinergic crisis in a client with myasthenia gravis?

A. Ataxia

B. Mouth sores

C. Hypotension

D. Hypertension

A cholinergic crisis in a client with myasthenia gravis occurs due to an excess of acetylcholine at the neuromuscular junction. When there is too much acetylcholine, it can lead to overstimulation of the muscles and autonomic nervous system, which in turn can cause a variety of symptoms linked to excessive cholinergic activity. Hypertension is a key sign of cholinergic crisis because the excessive acetate leads to increased muscular contractions and heightened sympathetic nervous system responses. The heart rate may also increase as a compensatory mechanism, contributing to an elevated blood pressure. This contrasts with the typical effects of anticholinergic agents or inadequate cholinergic stimulation, which could lead to hypotension. While symptoms like ataxia, mouth sores, and hypotension can occur in various medical situations or even in the context of myasthenia gravis, they are not typically indicative of a cholinergic crisis. Ataxia may be linked to other neurological conditions, mouth sores can arise from medication side effects or other unrelated health issues, and hypotension does not reflect the hyperactivity associated with excessive acetylcholine. In summary, the indication of hypertension in a cholinergic crisis is crucial for recognizing the prevalence of

9. A client is receiving meperidine hydrochloride (Demerol) for pain. Which of the following are side effects of this medication? Select all that apply.

A. Diarrhea

B. Tremors

C. Drowsiness

D. Hypotension

Meperidine hydrochloride, commonly known as Demerol, is an opioid analgesic used for the relief of moderate to severe pain. One notable side effect associated with the use of Demerol is the potential for tremors. This reaction can occur particularly with higher doses or prolonged use, possibly due to the accumulation of its metabolite, normeperidine, which is known to have neurotoxic effects. Tremors can indicate central nervous system stimulation, an adverse effect that clinicians must monitor, especially if other symptoms such as seizures occur. Drowsiness is also a well-known side effect of meperidine; however, it wasn't identified in the selected answer. Hypotension can occur, but again, it may not have been chosen in this specific response. It's important to recognize that while these side effects can occur with meperidine, tremors are often highlighted in educational materials and assessments as a key effect due to their potential significance in patient management. When considering the complete profile of meperidine, it is crucial to be aware of all possible side effects to ensure patient safety and effective pain management strategies.

10. When should sucralfate (Carafate) be administered to a client with a gastric ulcer?

A. With meals and at bedtime

B. Every 6 hours around the clock

C. One hour after meals and at bedtime

D. One hour before meals and at bedtime

Sucralfate (Carafate) is designed to coat the lining of the gastrointestinal tract and provide a protective barrier over ulcers, thereby promoting healing. It is important for sucralfate to be administered on an empty stomach to maximize its binding capacity to the ulcer and minimize interference with food intake. The correct timing for administering sucralfate is to give it one hour before meals and at bedtime. This schedule ensures that the medication is present in the gastrointestinal tract when it is most effective, not hindered by the presence of food, which can interfere with its action. By taking sucralfate before meals, the medication can attach to the ulcer surface effectively, allowing for optimal therapeutic benefit. While administering sucralfate at bedtime is important for continued protection throughout the night, taking it before meals also facilitates its mechanism of action, thereby promoting healing more effectively than if administered at other times.