

New Zealand Pharmacology for Midwifery Students Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

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SAMPLE

Questions

- 1. What is a contraindication for the use of an epidural?**
 - A. Low blood pressure**
 - B. Maternal request**
 - C. Uterine scar**
 - D. Active labor**
- 2. What is the impact of maternal obesity on drug pharmacokinetics?**
 - A. It has no impact on drug pharmacokinetics**
 - B. It can alter the volume of distribution**
 - C. It requires lower drug dosages**
 - D. It increases metabolism of all drugs**
- 3. What is the primary action of Atosiban in pregnancy?**
 - A. Increases myometrial contractions**
 - B. Blocks oxytocin receptors**
 - C. Stimulates calcium release**
 - D. Enhances myometrial cell activity**
- 4. What is the usual dose of Benzylpenicillin during labor?**
 - A. 1g every 6 hours**
 - B. 3g initially, then 1.5g every 4 hours**
 - C. 500mg every 3 hours**
 - D. 1g stat dose**
- 5. What is the mechanism of action of Benzylpenicillin?**
 - A. Inhibits bacterial protein synthesis**
 - B. Prevents bacterial wall synthesis**
 - C. Inhibits DNA synthesis**
 - D. Inhibits metabolic production**
- 6. Why are live vaccines generally contraindicated during pregnancy?**
 - A. They may cause allergic reactions**
 - B. They could potentially harm the developing fetus**
 - C. They do not provide adequate immunity**
 - D. They are less effective than inactivated vaccines**

- 7. Why is it important to monitor maternal drug tolerance during pregnancy?**
- A. To prevent the risk of overdose**
 - B. To understand the effects on labor**
 - C. To track weight gain**
 - D. To manage nursing practices post-delivery**
- 8. What is a major risk of using stimulant laxatives over a prolonged period?**
- A. Increased water retention**
 - B. Dependency development**
 - C. Electrolyte imbalance**
 - D. Delayed bowel function**
- 9. Define the term 'lactation categories' in pharmacology.**
- A. Classification of medications based on their safety for breastfeeding mothers and infants**
 - B. Categories of lactation supplements only**
 - C. Classification of food safe for breastfeeding**
 - D. Regulatory approvals for lactose-free drugs**
- 10. What is the primary action of naloxone in cases of opioid-induced respiratory depression?**
- A. It enhances opioid effects**
 - B. It serves as a competitive antagonist to opioids**
 - C. It increases the half-life of opioids**
 - D. It provides sedation in infants**

Answers

SAMPLE

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

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Explanations

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1. What is a contraindication for the use of an epidural?

- A. Low blood pressure**
- B. Maternal request**
- C. Uterine scar**
- D. Active labor**

The presence of a uterine scar, such as that from a previous cesarean section, is considered a significant contraindication for the use of an epidural. This is due to the potential complications that could arise during labor, particularly in cases where there is an increased risk of uterine rupture. An epidural may lead to a delay in recognizing signs of distress or complications that can occur with a uterine scar, increasing the risk to both the mother and the fetus. In contrast, low blood pressure may require careful monitoring and management but is not an absolute contraindication. Maternal request does not negate the possibility of using an epidural, as the decision is based on individual circumstances and assessments by healthcare providers. Active labor typically necessitates pain management and an epidural can be an appropriate option during this phase, provided other factors are not contraindicated.

2. What is the impact of maternal obesity on drug pharmacokinetics?

- A. It has no impact on drug pharmacokinetics**
- B. It can alter the volume of distribution**
- C. It requires lower drug dosages**
- D. It increases metabolism of all drugs**

Maternal obesity has a significant impact on drug pharmacokinetics, and one of the most notable effects is the alteration of the volume of distribution. In individuals with obesity, changes in body composition, such as increased adipose tissue, can lead to a greater volume of distribution for lipophilic drugs, as these drugs tend to accumulate in fatty tissues. Additionally, factors such as changes in plasma protein levels and increased blood volume can also affect how drugs are distributed in the body. This means that the pharmacokinetic parameters of drugs can change considerably in obese patients, potentially requiring adjustments in dosing. Understanding these changes is crucial for ensuring effective and safe medication management during pregnancy, as improper dosing can lead to therapeutic failures or increased risk of adverse effects. Hence, recognizing the role of maternal obesity in altering pharmacokinetics is essential for midwives and healthcare providers in providing optimal care.

3. What is the primary action of Atosiban in pregnancy?

- A. Increases myometrial contractions
- B. Blocks oxytocin receptors**
- C. Stimulates calcium release
- D. Enhances myometrial cell activity

Atosiban primarily acts by blocking oxytocin receptors, which plays a crucial role in its therapeutic effect during pregnancy. Oxytocin is a hormone that promotes uterine contractions, and by inhibiting its action, Atosiban helps to delay preterm labor. This means that the drug is effective in its ability to reduce or stop contractions that could lead to premature delivery, thus allowing for more time for fetal development. The significance of this mechanism lies in its targeted approach to manage preterm labor without significant stimulation of the uterus, which is essential for maintaining a pregnancy longer. This selective blocking of oxytocin receptors helps to ensure the safety of both the mother and the fetus, as it effectively addresses the primary physiological trigger of labor contractions.

4. What is the usual dose of Benzylpenicillin during labor?

- A. 1g every 6 hours
- B. 3g initially, then 1.5g every 4 hours**
- C. 500mg every 3 hours
- D. 1g stat dose

The usual dose of Benzylpenicillin during labor is typically 3g initially, followed by 1.5g every 4 hours. This dosing regimen is designed to ensure effective levels of the antibiotic in the bloodstream to protect both the mother and baby from potential infections, especially in cases where there is a risk of Group B Streptococcus (GBS) transmission during delivery. The initial high dose of 3g is crucial for rapidly achieving effective serum levels of Benzylpenicillin. The subsequent dosing of 1.5g every 4 hours maintains these effective levels throughout labor, which may be prolonged. This dosage schedule is based on clinical guidelines that recognize the importance of timely antibiotic administration in labor to minimize the risk of sepsis in the newborn. Other options, while they may reflect possible antibiotic dosing for different scenarios, do not align with the recommended protocol for Benzylpenicillin in the context of labor and GBS prevention. Understanding the appropriate dosing is essential for midwifery practice to ensure optimal maternal and neonatal outcomes during childbirth.

5. What is the mechanism of action of Benzylpenicillin?

A. Inhibits bacterial protein synthesis

B. Prevents bacterial wall synthesis

C. Inhibits DNA synthesis

D. Inhibits metabolic production

Benzylpenicillin, also known as penicillin G, works primarily by preventing bacterial wall synthesis. This antibiotic targets and binds to penicillin-binding proteins (PBPs) located within the bacterial cell wall. These PBPs are crucial for the cross-linking of peptidoglycan layers that provide structural integrity to the bacterial cell wall. By inhibiting the activity of these proteins, benzylpenicillin disrupts the formation of the cell wall, leading to cell lysis and ultimately the death of the bacteria. This mechanism is particularly effective against actively dividing bacteria, as they are continuously synthesizing and remodeling their cell walls to grow and multiply. The specific action of benzylpenicillin is largely responsible for its effectiveness against many Gram-positive organisms, as well as some Gram-negative cocci. Understanding this mechanism is essential for midwifery students, as it provides insight into how antibiotics can be utilized to manage bacterial infections in pregnant women and their newborns.

6. Why are live vaccines generally contraindicated during pregnancy?

A. They may cause allergic reactions

B. They could potentially harm the developing fetus

C. They do not provide adequate immunity

D. They are less effective than inactivated vaccines

Live vaccines are contraindicated during pregnancy primarily because they could potentially harm the developing fetus. Live vaccines contain a weakened form of the virus or bacteria they are designed to protect against, which has the potential to infect not only the mother but also the fetus. This poses a risk, especially during the critical periods of fetal development when the fetus is particularly vulnerable to infections and the potential for teratogenic effects. In contrast, inactivated or killed vaccines do not carry this risk as they cannot replicate or cause disease in the body, making them safer options during pregnancy. The principle behind this contraindication is rooted in the precautionary approach to protect fetal health during a time when their organs and systems are still developing. Therefore, while maternal health is of utmost importance, the fetal risks associated with live vaccines necessitate their avoidance during pregnancy.

7. Why is it important to monitor maternal drug tolerance during pregnancy?

- A. To prevent the risk of overdose**
- B. To understand the effects on labor**
- C. To track weight gain**
- D. To manage nursing practices post-delivery**

Monitoring maternal drug tolerance during pregnancy is vital to prevent the risk of overdose. During pregnancy, physiological changes can alter how a woman's body processes and responds to medications. Factors such as increased blood volume, modified metabolism, and changes in organ function can all influence drug effectiveness and safety. In some cases, a pregnant woman's tolerance to a medication may decrease, making her more susceptible to its effects. By closely monitoring drug tolerance, healthcare providers can adjust dosages and choose appropriate medications to ensure both maternal and fetal safety, minimizing the potential for adverse drug interactions or overdose situations. This proactive approach is essential to safeguard both the pregnant individual and the developing fetus.

8. What is a major risk of using stimulant laxatives over a prolonged period?

- A. Increased water retention**
- B. Dependency development**
- C. Electrolyte imbalance**
- D. Delayed bowel function**

Using stimulant laxatives over a prolonged period can lead to dependency development, which is a significant concern. Stimulant laxatives work by irritating the bowel and stimulating contractions, which can facilitate bowel movements. However, when these laxatives are used continuously, the bowel can become reliant on this external stimulus for regular movement, leading to decreased natural motility. This dependency can manifest as a condition known as "laxative dependency," where the individual may find it difficult to have a bowel movement without the use of the laxative. As a result, they may continue to increase the dosage or frequency of use, perpetuating a cycle of dependency that can be challenging to break. In some cases, this can also lead to worsening constipation when the stimulant is not used, creating a vicious cycle that can be hard to escape. Other options, while relevant risks associated with laxative use, do not specifically highlight the core issue related to dependency in the same way. Electrolyte imbalance, for instance, is more closely related to the excessive loss of fluids and salts often common with other laxative types or severe dehydration situations. Delayed bowel function is misleading in this context, as stimulant laxatives are typically used to accelerate bowel function rather than delay it. Increased

9. Define the term 'lactation categories' in pharmacology.

A. Classification of medications based on their safety for breastfeeding mothers and infants

B. Categories of lactation supplements only

C. Classification of food safe for breastfeeding

D. Regulatory approvals for lactose-free drugs

The term 'lactation categories' in pharmacology refers to the classification of medications based on their safety for breastfeeding mothers and infants. This classification is critical for healthcare providers, particularly midwives, to ensure that medications prescribed do not adversely affect the nursing mother or her child. These categories help inform the decision-making process regarding whether certain medications can be safely used during lactation, taking into account factors such as the potential for drug transfer into breast milk and the known effects or risks to the infant. It provides guidelines that are essential for promoting maternal and infant health while managing medical conditions. The other options do not align with the definition of lactation categories in pharmacology; they either narrow the focus incorrectly to supplements, food safety, or unrelated issues regarding lactose-free drugs.

10. What is the primary action of naloxone in cases of opioid-induced respiratory depression?

A. It enhances opioid effects

B. It serves as a competitive antagonist to opioids

C. It increases the half-life of opioids

D. It provides sedation in infants

Naloxone primarily acts as a competitive antagonist to opioids, meaning it binds to the same receptors in the brain that opioids do, but it does not activate them. This action is crucial in cases of opioid-induced respiratory depression, as naloxone displaces opioids from these receptors, reversing their effects. By blocking the action of opioids, it helps to restore normal breathing by increasing respiratory drive, which is often compromised due to the depressant effects of opioids. This mechanism is vital in emergency situations where opioid overdose has led to reduced respiratory function. With its ability to quickly reverse the respiratory depression caused by opioids, naloxone is commonly used in clinical settings as an antidote, making it a critical therapeutic agent in managing opioid overdoses.