

# Drugs Affecting Blood Pressure Practice Test (Sample)

## Study Guide



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**SAMPLE**

## Questions

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- 1. Which lifestyle change is most effective for reducing blood pressure?**
  - A. Increased caffeine intake**
  - B. Weight loss and exercise**
  - C. Increased alcohol consumption**
  - D. Skipping meals**
  
- 2. What dietary modification is recommended for clients with primary hypertension?**
  - A. Increased intake of processed foods**
  - B. More fruits and vegetables**
  - C. High-calorie diet**
  - D. Increased sugary snack consumption**
  
- 3. What defines resistant hypertension?**
  - A. Hypertension that responds well to medication**
  - B. Hypertension that remains above target despite adherence to a minimum of three antihypertensive medications**
  - C. Hypertension that occurs only at night**
  - D. Hypertension that resolves with lifestyle changes**
  
- 4. What should a patient taking verapamil avoid to ensure effective treatment?**
  - A. Grapefruit juice**
  - B. Milk**
  - C. Apple juice**
  - D. Yogurt**
  
- 5. What could result from inadequate treatment of hypertension?**
  - A. Heart hypertrophy**
  - B. Improved kidney function**
  - C. Decreased cardiac workload**
  - D. Enhanced physical endurance**

- 6. What effect do potassium-sparing diuretics have on potassium levels?**
- A. They reduce potassium levels**
  - B. They maintain or increase potassium levels**
  - C. They have no effect on potassium levels**
  - D. They can cause severe hyperkalemia**
- 7. In which situation would a nurse likely adjust the dosage of a blood pressure medication?**
- A. New diagnosis of diabetes**
  - B. Client experiencing sleeping difficulties**
  - C. Client shows signs of hypotension**
  - D. Change in diet**
- 8. What is the significance of JNC guidelines in managing hypertension?**
- A. They are outdated recommendations**
  - B. They provide evidence-based recommendations for diagnosing and treating hypertension**
  - C. They only focus on medication side effects**
  - D. They are only applicable to elderly patients**
- 9. Which patient is most likely to be at risk for neutropenia while on captopril?**
- A. Angela, who is in her first trimester of pregnancy**
  - B. Mark, who is suffering from impaired renal function**
  - C. Hilda, who is showing symptoms of chronic cough**
  - D. Karl, who is showing symptoms of angioedema confined to the face and lip**
- 10. Why is blood pressure control important for a client?**
- A. Hypertension increases stroke risk.**
  - B. Hypertension increases liver disease risk.**
  - C. Hypertension increases risk of colorectal carcinoma.**
  - D. Both A and B are correct.**

## **Answers**

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

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## **Explanations**

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**1. Which lifestyle change is most effective for reducing blood pressure?**

- A. Increased caffeine intake**
- B. Weight loss and exercise**
- C. Increased alcohol consumption**
- D. Skipping meals**

Weight loss and exercise are widely recognized as highly effective lifestyle changes for reducing blood pressure. When individuals lose excess weight, it can lead to significant improvements in body function, including reduced strain on the heart and improved vascular health. Exercise contributes to this effect by strengthening the cardiovascular system, enhancing blood flow, and promoting the efficient use of oxygen throughout the body. Regular physical activity also helps to lower stress levels and can have a positive impact on overall health, which is beneficial in managing blood pressure. Together, these changes not only help to lower blood pressure but also contribute to reducing the risk of hypertension-related complications in the future. The other choices do not support effective blood pressure management. Increased caffeine intake may lead to temporary spikes in blood pressure for some individuals, while increased alcohol consumption can raise blood pressure and contribute to various health issues. Skipping meals often leads to fluctuations in blood sugar levels and can increase stress on the body, potentially having a negative impact on overall health.

**2. What dietary modification is recommended for clients with primary hypertension?**

- A. Increased intake of processed foods**
- B. More fruits and vegetables**
- C. High-calorie diet**
- D. Increased sugary snack consumption**

The recommendation for increased intake of fruits and vegetables for clients with primary hypertension is rooted in the beneficial effects these foods have on blood pressure and overall cardiovascular health. Fruits and vegetables are typically high in potassium, which helps balance sodium levels in the body, potentially leading to lower blood pressure. They are also rich in fiber, vitamins, and antioxidants, all of which contribute to improved heart health. Additionally, adopting a diet rich in fruits and vegetables is a key component of dietary approaches to stop hypertension (DASH), which emphasizes the importance of these foods while reducing sodium intake. This dietary pattern has been shown to effectively lower blood pressure in individuals with hypertension. In contrast, choices involving increased intake of processed foods or a high-calorie diet generally contribute to higher sodium and unhealthy fat consumption, which can exacerbate hypertension. Similarly, increased sugary snack consumption can lead to weight gain and negatively affect blood pressure regulation. Therefore, the focus on more fruits and vegetables is supported by research as a fundamental dietary modification for managing primary hypertension.

### 3. What defines resistant hypertension?

- A. Hypertension that responds well to medication
- B. Hypertension that remains above target despite adherence to a minimum of three antihypertensive medications**
- C. Hypertension that occurs only at night
- D. Hypertension that resolves with lifestyle changes

Resistant hypertension is defined by the persistence of high blood pressure despite the use of a sufficient regimen of antihypertensive medications. Specifically, it refers to cases where blood pressure remains above the target level despite adherence to a minimum of three antihypertensive agents of different classes. This condition is significant because it suggests that the hypertension may be more challenging to manage, possibly due to factors such as medication resistance, secondary causes of hypertension, or inadequate treatment strategies. In this context, the other options do not accurately capture the essence of resistant hypertension. For instance, effective responsive hypertension (the first option) implies good control of blood pressure with medications, which is the opposite of the phenomenon being described. The possibility of hypertension only occurring at night (the third option) refers more to nocturnal hypertension rather than resistance to medications. Lastly, hypertension that resolves with lifestyle changes (the fourth option) suggests a situation where non-pharmacological interventions are sufficient for blood pressure control, further diverging from the definition of resistant hypertension where medication is necessary but not effective.

### 4. What should a patient taking verapamil avoid to ensure effective treatment?

- A. Grapefruit juice**
- B. Milk
- C. Apple juice
- D. Yogurt

Verapamil is a calcium channel blocker commonly used to treat high blood pressure and other cardiovascular conditions. One of the major drug interactions with verapamil is grapefruit juice, which is known to interfere with the metabolism of many medications. Grapefruit contains compounds that inhibit the cytochrome P450 enzyme system, particularly CYP3A4, which is responsible for the breakdown of verapamil in the liver. When this enzyme is inhibited, the levels of verapamil in the bloodstream can increase, potentially leading to an increased risk of side effects and toxicity. By avoiding grapefruit juice, the patient helps to maintain stable and appropriate levels of verapamil in the system, ensuring effective treatment without the risk of adverse effects associated with overexposure. This is why it is essential for patients on verapamil to be cautious about consuming grapefruit products. In contrast, milk, apple juice, and yogurt do not have known significant interactions with verapamil and can typically be consumed without concern for affecting the medication's effectiveness.

**5. What could result from inadequate treatment of hypertension?**

- A. Heart hypertrophy**
- B. Improved kidney function**
- C. Decreased cardiac workload**
- D. Enhanced physical endurance**

Inadequate treatment of hypertension can lead to heart hypertrophy, which is the thickening of the heart muscle. When blood pressure remains high over time, the heart has to work harder to pump blood against the increased resistance in the arteries. This heightened workload can cause the heart muscle cells to grow larger, leading to hypertrophy. Heart hypertrophy is a significant concern because it can lead to various complications, including heart failure and arrhythmias. Additionally, as the heart adapts to the increased workload, its efficiency may decrease, ultimately impacting overall cardiovascular health. The other outcomes listed—improved kidney function, decreased cardiac workload, and enhanced physical endurance—are not typically associated with untreated hypertension. Instead, uncontrolled high blood pressure often leads to worsening health conditions rather than improvements.

**6. What effect do potassium-sparing diuretics have on potassium levels?**

- A. They reduce potassium levels**
- B. They maintain or increase potassium levels**
- C. They have no effect on potassium levels**
- D. They can cause severe hyperkalemia**

Potassium-sparing diuretics are designed to prevent the loss of potassium while promoting the excretion of sodium and water. Unlike other diuretics that can lead to hypokalemia (low potassium levels), potassium-sparing diuretics work by either blocking the action of aldosterone, a hormone that promotes sodium retention and potassium excretion, or by directly affecting potassium channels in the renal tubules. As a result, these diuretics maintain or can even increase potassium levels in the blood. This characteristic is particularly beneficial in cases where a patient may be at risk for low potassium levels or when a potassium-sparing diuretic is used in conjunction with other diuretics that have a tendency to deplete potassium. While there is a potential risk of hyperkalemia (excess potassium) especially in patients with kidney impairment or when used with other medications that raise potassium levels, the primary function of potassium-sparing diuretics is to preserve potassium. Hence, they are named for their capability to spare potassium in contrast to traditional diuretics.

**7. In which situation would a nurse likely adjust the dosage of a blood pressure medication?**

- A. New diagnosis of diabetes**
- B. Client experiencing sleeping difficulties**
- C. Client shows signs of hypotension**
- D. Change in diet**

The adjustment of the dosage of a blood pressure medication is most likely warranted when a client shows signs of hypotension. Hypotension, or abnormally low blood pressure, can result from various factors, including medication response, dehydration, or underlying health conditions. When a client exhibits such signs, it is essential for the nurse to assess and potentially modify the medication dosage to ensure the patient's blood pressure remains within a safe and effective range. In contrast, while a new diagnosis of diabetes or sleeping difficulties can influence overall health and potentially affect blood pressure management, they do not immediately necessitate a dosage adjustment specific to blood pressure medications. Additionally, a change in diet might influence blood pressure, but adjustments would be based on how that diet impacts the patient's blood pressure rather than an immediate need for medication dosage modification. Thus, the situation most directly impacting the need for dosage adjustment is the occurrence of hypotension.

**8. What is the significance of JNC guidelines in managing hypertension?**

- A. They are outdated recommendations**
- B. They provide evidence-based recommendations for diagnosing and treating hypertension**
- C. They only focus on medication side effects**
- D. They are only applicable to elderly patients**

The significance of the JNC (Joint National Committee) guidelines in managing hypertension lies in their provision of evidence-based recommendations for diagnosing and treating hypertension. These guidelines are created through extensive research and reviews of the latest scientific literature, ensuring that healthcare providers have access to the most effective strategies for managing blood pressure. By systematically evaluating various treatment options and their outcomes, the guidelines help clinicians make informed decisions that can lead to improved patient outcomes. This evidence-based approach addresses a wide range of factors, including lifestyle modifications, pharmacological treatments, and the management of comorbid conditions, making the guidelines applicable to a diverse patient population, not just a limited demographic. The reliance on evidence underlines the importance of updating clinical practices based on the latest findings, ensuring that recommendations are not only relevant but also effective in promoting cardiovascular health. Thus, the approach reflects a comprehensive strategy in hypertension management, which encompasses more than just medications or demographic considerations.

**9. Which patient is most likely to be at risk for neutropenia while on captopril?**

- A. Angela, who is in her first trimester of pregnancy**
- B. Mark, who is suffering from impaired renal function**
- C. Hilda, who is showing symptoms of chronic cough**
- D. Karl, who is showing symptoms of angioedema confined to the face and lip**

Captopril is an ACE (angiotensin-converting enzyme) inhibitor commonly used to treat hypertension and heart failure. One of the potential side effects of captopril is neutropenia, which is a significant decrease in neutrophils, a type of white blood cell essential for fighting infections. Impaired renal function can lead to alterations in drug metabolism and clearance, increasing the risk of side effects such as neutropenia. When the kidneys are not functioning optimally, they may be unable to effectively process and eliminate the medication from the system, potentially leading to higher drug levels and an increased risk of adverse reactions. Patients with impaired renal function need careful monitoring and dosage adjustments, as the risks associated with captopril, including the development of neutropenia, are greater in this population. Thus, Mark is the patient most likely to be at risk for developing neutropenia while on captopril due to his renal issues.

**10. Why is blood pressure control important for a client?**

- A. Hypertension increases stroke risk.**
- B. Hypertension increases liver disease risk.**
- C. Hypertension increases risk of colorectal carcinoma.**
- D. Both A and B are correct.**

Maintaining blood pressure control is crucial because uncontrolled hypertension can lead to significant health risks, particularly highlighted by the connection between high blood pressure and increased stroke risk. Elevated blood pressure contributes to the damage of blood vessels, leading to conditions such as atherosclerosis, which increases the likelihood of stroke as it can result in blood clots or ruptured arteries in the brain. While hypertension does have associations with other health issues, such as complications related to liver disease and its potential impacts on overall health, the direct correlation with stroke risk is a particularly critical reason for managing blood pressure effectively. Both hypertension's relationship with increased stroke risk and its contribution to various other health complications underscored in the options affirm the importance of control in blood pressure levels for overall well-being.