Chapter 1. Hypertension

Multiple Choice
Identify the choice that best completes the statement or answers the question.

1. What is the most common chronic condition seen in primary care settings?
   A. Elevated blood pressure
   B. Renal disease
   C. Cardiovascular disease
   D. Chronic kidney disease

Answer: _____

2. What is the national goal of Healthy People 2020?
   A. To report cardiovascular disease instances
   B. To increase the number of people who have had their blood pressure measured and have reported it within normal limits
   C. To increase the number of people who record chronic kidney disease
   D. To increase the number of people who have reported urinary tract obstructions

Answer: _____

3. What is the definition of blood pressure?
   A. Contraction of the heart
   B. Elevated blood pressure
   C. Force exerted against arterial walls by blood as it circulates through the body
   D. No contraction of the heart

Answer: _____

4. What is the proper formula for cardiac output?
   A. CO = BP/PVR
   B. Co · SV
   C. CO = SV · HR

D. CO · SV · HR

Answer: _____

5. How many liters/min of blood are pumped by the heart in a healthy adult?
   A. 4 liters/min
   B. 5 liters/min
   C. 6 liters/min
   D. 7 liters/min

Answer: _____

6. Which two systems are directly dependent on normal blood pressure?
   A. Renal and endocrine system
   B. Reproductive system
   C. Integumentary system
   D. Lymphatic system

Answer: _____

7. According to the AHA (American Heart Association), what is the normal level for blood pressure?
   A. 130/90
   B. 120/80
   C. 140/90
   D. 150/90

Answer: _____

8. What causes an increased stiffness of arteries in aging individuals?
   A. Shortening of the telomere
   B. Lose elasticity
   C. Decreased blood pressure
   D. Low cardiac output

Answer: _____

9. What diet is recommended for lowering blood pressure and is high in fruits and vegetables?
   A. Weight Watchers
   B. Keto
   C. DASH
   D. South Beach

Answer: _____

10. What are the choices of medications to manage hypertension (HTN)?
   A. Cost
   B. Limitations of adverse effects
   C. The presence of other risk factors
   D. All the above

Answer: _____

11. What is the main function of beta blockers?
   A. To lower blood pressure
   B. To increase blood pressure
   C. To increase heart rate
   D. To increase pulse pressure

Answer: _____

12. What is the main function of calcium channel blockers?
   A. Vascular constriction
   B. Vascular dilation
   C. Increase blood pressure
   D. Increase pulse rate

Answer: _____

13. What is the main function of diuretics?
   A. To increase blood pressure
   B. To decrease blood pressure
   C. Vasodilate

D. Vasoconstrict

Answer: _____

14. What is an example of an adrenergic drug classification?
    A. Dopamine
    B. Losartan
    C. Diltiazem
    D. Hydralazine

Answer: _____

15. What is an example of a vasodilator drug classification?
    A. Dopamine
    B. Losartan
    C. Diltiazem
    D. Hydralazine

Answer: _____

MULTIPLE CHOICE

Answers and Rationales

1. What is the most common chronic condition seen in primary care settings?

A. Elevated blood pressure or hypertension
B. Renal disease
C. Cardiovascular disease
D. Chronic kidney disease

ANS: A
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Elevated blood pressure is also known as hypertension. Hypertension is the most common chronic condition seen in primary care settings. Hypertension can lead to more serious conditions such as cardiovascular disease, renal disease, and, if left untreated, possible death.

2. What is the national goal of Healthy People 2020?

A. To report cardiovascular disease instances
B. To increase the number of people who have had their blood pressure measured and have reported it within normal limits
C. To increase the number of people who record chronic kidney disease
D. To increase the number of people who have reported urinary tract obstructions

ANS: B
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The Healthy People of 2020 national goal objective is to increase the number of people who have had their blood pressure previously measured within the past two years and who have reported it normal. A normal blood pressure reading is classified as 120/80.

3. What is the definition of blood pressure?

A. Contraction of the heart

B. Elevated blood pressure

C. Force exerted against arterial walls by blood as it circulates through the body

D. No contraction of the heart

ANS: C
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Blood pressure is the definition of force exerted against the arterial walls by blood as it circulates through the body. Systolic pressure is the force or contraction of the heart. Diastole is the pressure in the arteries when the heart fills and rests between beats.

4. What is the proper formula for cardiac output?

A. $CO = BP/PVR$

B. $CO \cdot SV$

C. $CO = SV \cdot HR$

D. $CO \cdot SV \cdot HR$

ANS: A
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Blood pressure is dependent upon many factors such as cardiac output and peripheral vascular resistance (PVR). The correct formula for cardiac output is expressed as $CO = BP/PVR$. This equation shows the relationship of blood flow through the body and blood pressure in the arteries.

5. How many liters/min of blood is pumped by the heart in a healthy adult?

A. 4 liters/min

B. 5 liters/min

C. 6 liters/min

.
D 7 liters/min
.

ANS: B
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The average healthy adult has about 5 liters/min pumped by the heart through cardiac output. This number can be calculated by multiplying the stroke volume (which is the amount of blood pumped in each contraction) and by the heart rate.

6. Which two systems are directly dependent on normal blood pressure?
A Renal and Endocrine system
.
B Reproductive system
.
C Integumentary system
.
D Lymphatic system
.

ANS: A
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The renal and endocrine system are especially important in regulating your blood pressure because the Renin-angiotensin-aldosterone system (RAAS) maintains function of normal blood pressure. The RAAS mechanism decreases circulating blood volume and can decrease blood pressure to maintain normal levels. In the endocrine system the adrenal glands are responsible for secreting corticosteroids and maintaining normal blood pressure.

7. According to the AHA (American Heart Association), what is the normal level for blood pressure?
A 130/90
.
B 120/80
.
C 140/90
.
D 150/90
.

ANS: B
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According to the AHA the normal blood pressure readings of systolic and diastolic is 120/80. Essential hypertension is classified as greater than 140/90. Genetics, environment, and aging all have effects on essential hypertension.

8. What causes an increased stiffness of arteries in aging individuals?
   A. Shortening of telomeres
   B. Lose elasticity
   C. Decreased blood pressure
   D. Low cardiac output

ANS: A
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During aging, the telomere of your DNA shortens. This causes an increase in stiffness of the arteries which then increases the pulse pressure. In aging, your arteries lose elasticity and decrease renal function. Blood pressure also increases with age and can lead to hypertension as well.

9. What diet is recommended for lowering blood pressure and is high in fruits and vegetables?
   A. Weight Watchers
   B. Keto
   C. DASH
   D. South Beach

ANS: C
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The DASH diet also known as the Dietary Approaches to Stop Hypertension is known to be effective in lowering blood pressure, reducing fat, and is high in fruits and vegetables. The DASH diet also lowers sodium intake.

10. What are the choices of medications to manage hypertension (HTN)?
   A. Cost
   B. Limitations of adverse effects
   C. The presence of other risk factors
   D. All the above

ANS: D

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The choices of medication to manage HTN is based on cost, limitations to adverse effects of the medication, the patient's HTN classification, and the presence of other risk factors (obesity, smoking, age, family history).

11. What is the main function of beta blockers?
A. To lower blood pressure
B. To increase blood pressure
C. Increase heart rate
D. Increase pulse pressure

ANS: A
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Beta blockers main function is to lower blood pressure. Beta blockers lower pressure by decreasing the cardiac workload through negative chronotropic and inotropic effects. Chronotropic effects from medications change the electrical conduction system of the heart, and a negative chronotropic effect decreases the heart rate, and lowers blood pressure. Inotropic effects weaken the force of the heart and lowers blood pressure.

12. What is the main function of calcium channel blockers?
A. Vascular constriction
B. Vascular dilation
C. Increase blood pressure
D. Increase pulse rate

ANS: B
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Calcium channel blockers main function is vasodilation. Calcium channel blockers work to block calcium influx into the cell, which then causes vascular dilation. Calcium channel blockers are absorbed and metabolized by the liver.

13. What is the main function of diuretics?
A. To increase blood pressure
B. To decrease blood pressure
C. Vasodilate
D. Vasoconstrict

ANS: B
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Diuretics main function is to lower blood pressure by decreasing the extracellular fluid volume in a cell. Diuretics increase the amount of water that the body releases which is excreted through urine.

14. What is an example of an adrenergic drug classification?
A. Dopamine
B. Losartan
C. Diltiazem
D. Hydralazine

ANS: A
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Adrenergic drugs activate sympathomimetic responses. This drug promotes the stimulation of the sympathetic nerves. Dopamine is an example of an adrenergic drug. This drug also helps with arrythmias, hypotension, and headaches.

15. What is an example of a vasodilator drug classification?
A. Dopamine
B. Losartan
C. Diltiazem
D. Hydralazine

ANS: D
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Hydralazine is an example of a vasodilator drug. Vasodilators act directly on the peripheral arteries. Vasodilators lower blood pressure and decrease the afterload in heart function. Vasodilators help with tachycardia, dizziness, drowsiness, and headaches.