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QUESTION 1:

LONG TERM REGULATION OF MEAN ARTERIAL BLOOD PRESSURE

Firstly, what is the mean arterial blood pressure? The mean arterial BP is the product of the cardiac output and the total peripheral resistance. BP can be regulated on either short term or long term. There are various physiological mechanisms of regulation on long term. Long term regulation involves mainly the regulation of the extracellular fluid volume by pressure natriuresis mechanisms residing in the kidney and by widespread of angiotensin action. Some of the regulatory mechanisms include;

1. RAAS (Renin-Angiotensin-Aldosterone System): Renin facilitates the conversion of angiotensinogen to angiotensin I which is then converted to angiotensin II which is a potent vasoconstrictor.
2. ADH (Anti-Diuretic Hormone): ADH increases the permeability of the collecting ducts to water by inserting aquaporin channels into the apical membrane. It also stimulates sodium reabsorpbtion from the thick ascending limb of the loop of Henle thus increasing plasma volume and decreasing osmolarity.
3. ANP (Atrial Natriuretic Peptide): They act to promote sodium excretion by dilating the afferent arteriole of the glomerulus thus increasing blood flow.
4. Prostaglandin action: Prostaglandin acts as local vasodilators to increase GFR and reduce sodium reabsorption.

CLINICAL SIGNIFICANCE

**HYPERTENSION**

QUESTION 2

1. PULMONARY CIRCULATION: It is a part of the circulatory system which carries blood which has been deoxygenated away from the right ventricle to the lungs and then returns oxygenated blood to the heart via the left atrium and ventricle
2. CIRLCE OF WILLIES: This is the joining area of several arterials in the inferior side of the brain. It is a part of the cerebral circulation.
3. SPLANCHNIC CIRCULATION: It is also known as Mesenteric circulation. It consist of the blood supply to the GIT, liver, spleen and pancreas.
4. CORONARY CIRCULATION: This is the flow of blood in the vessels that supplies the myocardium of the heart. Coronary arteries supply oxygenated blood to the heart and the cardiac veins drains the blood once it has been deoxygenated.
5. CUTANEOUS CIRCULATION: This is the blood supply to the skin.

QUESTION 3:

CARDIOVASCULAR ADGJUSTMENT DURING EXERCISE

The major activities that take place are;

1. Chemo/baroreceptors detect increased metabolic activities
2. The cardiac accelerator centre is stimulated
3. Sympathetic discharge is initiated
4. There is increased impulse at SA node
5. Increased heart rate
6. Increased stroke volume
7. Increased blood pressure
8. Increased cardiac output

**THANK YOU AND STAY SAFE!**