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 ASSIGNMENT

1. Long term regulation of mean arterial blood pressure is carried out by several physiological mechanisms, they include:
2. Renin-Angiotensin-Aldosterone System (RAAS): Renin is a peptide hormone released by the granular cells of the juxtaglomerular apparatus in the kidney. Its released in response to: Sympathetic stimulation and

Renin facilitates the conversion of angiotensinogen to angiotensin I which is then converted to angiostensin II. Angiotensin II is a potential vasoconstrictor. It acts directly on the kidney to increase sodium reabsorption in the proximal convoluted tubule. More sodium collects in the kidney tissue and water then follows by osmosis. This results in decreased water excretion and therefore increased blood volume and therefore increased blood volume and thus blood pressure .

1. By regulation of extracellular fluid volume: When the blood pressure increases , the kidneys excrete large amounts of water and salt, particularly sodium by means of pressure dieresis and pressure natriuresis. Pressure dieresis is the excretion of large quantity of water in urine because of increased blood pressure. Even the slightest increase in blood pressure doubles the water excretion. Pressure natriuresis is te excretion of large quantity of sodium in urine.
2. A. Pulmonary Circulation: This is the portion of the circulatory system which carries deoxygenated blood from the heart to the lungs , and returns oxygenated blood to the left atrium of the heart. The vessels of pulmonary circulation are the pulmonary arteries and the pulmonary veins.

B. Circle of willis: The circle of willis is the joint area of several arteries at the inferior side of the brain. At the circle of Willis, the internal carotid arteries branch into smaller arteries that supply oxygenated blood to over eighty percent of the cerebrum and other surrounding structures.

C. Splanchnic Blood Flow: The Splanchnic circulation is composed of the blood flow originating from the celiac, superior mesenteric and inferior mesenteric arteries and is distributed to all abdominal viscera. The splanchnic circulation receives over 25% of the cardiac output and contains a similar percentage of the total blood volume under normal conditions.

D. Coronary circulation: This is the circulation of blood in the blood vessels that supply the heart muscles. Coronary arteries supply oxygenated blood to the heart muscles and cardiac veins drain away the blood once it has been deoxygenated. Interruption of coronary circulation leads to heart attack in which the heart muscle is damaged by oxygen starvation.

E. Cutaneous Circulation: This is the circulation zand blood supply of the skin. The skin is not a very metabolically active tissue and has relatively small energy requirements, so its blood supply is different to that of others. Some of the circulating blood volume in he skin will flow through arteriovenous anastomoses (AVAs) instead of capillaries.

1. The integrated response to severe exercise involves massive increases in the cardiac output, which are due to primarily to increase in cardiac rate and to a lesser extent the augmentation of stroke volume.The increase in stoke volume is due to an increase in end-diastolic cardiac size and secondly due to a reduction in end –systolic cardiac size. The enhanced cardiac output is distributed preferentially to the exercising muscles including the heart, mainly reflecting the augmented metabolic requirements of the myocardium due to near maximal increases in cardiac rate and contractility. The visceral blood flow is normally maintained during severe exercise as long as all other compensatory mechanisms remain intact.