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PHARMACOLOGY

18/MHS07/036

ANA 202

1. The heart is a muscular organ in most animals, which pumps blood through the blood vessels of the circulatory system. In humans, the heart is located between the lungs, in the middle compartment of the chest. The heart is divided into four chambers which include the upper left and right atria and lower left and right ventricles. The heart is enclosed in a protective sac, the pericardium, which also contains a small amount of fluid. The wall of the heart is made up of the layers: epicardium, myocardium, and endocardium. Here are some functions of the heart:

* The right atrium receives blood from the veins and pump it to the right ventricle
* The right ventricle receives blood from the right atrium and pumps it to the lungs, where it is loaded with oxygen.
* The left atrium receives oxygenated blood from the lungs and pumps it to the left ventricle.
* The left ventricle pumps oxygen rich blood to the rest of the body.

1. i. Coronary artery disease: this is caused by atherosclerosis. These fatty deposit known as atherosclerotic plaques narrow the coronary arteries, and if severe may reduce blood flow to the heart. Severe narrowing may cause chest pain or breathlessness during exercise or even at rest. The thin covering of the atherosclerotic plaque can rupture, exposing the fatty centre to the circulating blood. In this case a clot or thrombus can form, blocking the artery, and restricting blood flow to an area of the heart muscles causing a myocardial infarction or unstable angina.

ii. Heart failure: this is defined as a condition in which the heart is unable to pump enough blood to meet the demands of the body. Patients with heart failure may experience breathlessness especially when lying flat, as well as ankle swelling, known as peripheral oedema. Heart failure is the end result of many diseases affecting the heart, but is commonly associated with ischaemic heart disease, valvular heart disease, or high blood pressure.

iii. Cardiomyopathies: these are diseases affecting the muscle of the heart. Some cause abnormal thickening of the heart muscle, some cause the heart to abnormally expand and weaken, some cause the heart muscle to become stiff and unable to fully relax between contractions.

iv. Pericardial disease: the sack which surrounds the heart, called the pericardium, can become inflamed in a condition known as pericarditis. This condition typically causes chest pain that may spread to the back, and is often caused by a viral infection. Fluid can build up within the pericardial sack, referred to as a pericardial effusion.

v. Valvular heart disease: healthy heart valves allow blood to flow easily in one direction, but prevent it from flowing in the other direction. Diseased heart valves may have narrow opening and therefore restrict the flow of blood in the forward direction, or may allow blood to leak in the reverse direction.