



Role of Coronary Circulation in Heart Health

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DESCRIPTION

The arterial blood vessels of the coronary circulation, or coronary arteries, carry oxygenated blood to the heart muscle. Like any other body tissue or organ, the heart needs an on-going supply of oxygen to survive and function. The coronary arteries encircle the entire heart [1]. The left and right coronary arteries are the two principal branches. In addition, the arteries can be divided into groups according to the parts of the heart they supply with blood flow. These are known as the epicardial and microvascular categories. Reduced coronary artery function may result in less blood carrying nutrients and oxygen to the heart. This can have an impact on the heart's ability to pump blood throughout the body in addition to the supply to the heart muscle itself. As a result, any condition or illness affecting the coronary arteries can seriously harm one's health and even result in death [2].

Clinical relevance

Atherosclerosis, arteriosclerosis, and arteriolosclerosis are all conditions that can lead to artery narrowing. Plaques that have accumulated in the artery walls over time cause this to happen. Narrowing of the coronary arteries is referred to as coronary artery disease or ischemic heart disease. Plaque accumulation brought on by the disease's progression may partially obstruct blood supply to the heart muscle [3]. The heart can't function properly without enough blood flow, especially when it's under more strain. Angina stable is defined as pain in the chest that goes away with rest. Unstable angina is characterised by chest pain that is more severe, feels more persistent, and/or lasts longer than stable angina. It results from arteries that have become more severely narrowed [4].

Cardiac arrest a sudden plaque rupture and thrombus formation cause a heart attack when they completely block blood flow to a section of the heart, causing tissue death. Heart failure or arrhythmias can also be caused by CAD. Chronic oxygen deprivation brought on by decreased blood flow weakens the heart over time and results in heart failure. Insufficient blood flow to the heart, which interferes with the electric impulse of the

heart, is the primary cause of arrhythmias. The coronary arteries have the ability to narrow in response to a variety of stimuli, mainly chemical ones. An example of a coronary reflex is this: The wall of one of the coronary arteries tears in a condition known as spontaneous coronary artery dissection, which results in excruciating pain [5]. Unlike coronary artery disease, spontaneous coronary artery dissection typically affects younger people, including new mothers, men who exercise vigorously, and people who have recently had a baby.

CONCLUSION

The coronary artery that supplies the inferior wall of the heart and branches to supply the right posterior descending artery is said to have coronary artery dominance. The posterior descending artery is supplied by the right coronary artery in 80–85% of the population, making the right heart dominant, and by the left coronary artery in 7–13% of the population, making the left heart dominant. In 7–8% of the population, the posterior descending artery is right and left co-dominant, receiving blood from both the right and left coronary arteries. When compared to people with right- or co-dominant hearts, those with left-dominant hearts experience coronary artery narrowing more frequently.

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