Coronary artery disease

Coronary artery disease (CAD), also known as coronary heart disease (CHD) or ischemic heart disease, is a common type of cardiovascular disease. It occurs when the blood vessels that supply blood to the heart muscle (coronary arteries) become narrowed or blocked due to the buildup of fatty deposits, cholesterol, and other substances, collectively known as plaque.

Here's an overview of key points related to coronary artery disease:

Atherosclerosis: The primary cause of CAD is atherosclerosis, a process in which plaque accumulates on the inner walls of the coronary arteries. Plaque is made up of cholesterol, fatty deposits, calcium, and other substances. Over time, this plaque can harden and narrow the arteries, reducing blood flow to the heart.

Ischemia: When the blood flow to the heart muscle is compromised, it can result in a condition called ischemia. Ischemia can lead to chest pain or discomfort, known as angina. If the blood flow is severely restricted or completely blocked, it can cause a heart attack (myocardial infarction), which can result in damage to or death of part of the heart muscle.

Risk Factors: Several risk factors contribute to the development of coronary artery disease. These include:

Age: The risk increases with age. Gender: Men are generally at a higher risk than premenopausal women, although the risk for women increases after menopause. Family history: Having a family history of heart disease. Smoking: Tobacco use is a major risk factor. High blood pressure: Hypertension contributes to the hardening and narrowing of arteries. High cholesterol levels: Elevated LDL (“bad”) cholesterol and low HDL (“good”) cholesterol levels increase the risk. Diabetes: Individuals with diabetes are at a higher risk. Obesity: Being overweight or obese is a risk factor. Physical inactivity: Lack of regular exercise is associated with an increased risk. Symptoms: The symptoms of coronary artery disease can include chest pain or discomfort (angina), shortness of breath, fatigue, and, in severe cases, heart attack symptoms such as chest pain radiating to the arm, jaw, or back, along with sweating and nausea.

Diagnosis: Diagnosis may involve a combination of medical history, physical examination, blood tests, imaging studies (such as angiography or stress tests), and electrocardiograms (ECGs or EKGs).

Treatment: Management of coronary artery disease aims to reduce symptoms, prevent complications, and improve overall heart health. Treatment options may include lifestyle changes (diet, exercise, smoking cessation), medications (such as statins, antiplatelet drugs, beta-blockers), and, in some cases, invasive procedures like angioplasty or coronary artery bypass grafting (CABG).

Prevention: Lifestyle modifications, including a heart-healthy diet, regular exercise, maintaining a healthy weight, and managing risk factors, play a crucial role in preventing coronary artery disease. Regular medical check-ups and early intervention are also important for those at risk.

It's important for individuals at risk or diagnosed with coronary artery disease to work closely with healthcare professionals to develop and adhere to a personalized treatment and prevention plan.

Coronary artery disease remains the leading cause of global Cardiovascular Diseases mortality with

an age-standardized rate per 100,000 of 108.8 deaths, followed by intracerebral hemorrhage and ischemic stroke. High systolic blood pressure accounted for the largest contribution to attributable age-standardized CVD disability-adjusted life years (DALYs) at 2,564.9 per 100,000 globally. Dietary risks were the leading contributor to age-standardized CVD DALYs among the behavioral risks, while ambient particulate matter pollution led the environmental risks. Between 2015-2022, age-standardized CVD mortality increased in 27 out of 204 locations. Global death counts due to CVD increased from 12.4 million in 1990 to 19.8 million in 2022 reflecting global population growth and aging and the contributions from preventable metabolic, environmental, and behavioral risks. Eastern Europe had the highest age-standardized total CVD mortality at 553 deaths per 100,000. In contrast, countries in Australasia had the lowest age-standardized total CVD mortality at 122.5 deaths per 100,000 people. Central Asia, Eastern Europe, North Africa and the Middle East had the highest age-standardized mortality rate per 100,000 people attributable to high systolic blood pressure. The regions with the highest rates of CVD burden attributable to dietary risk were Central Asia, Oceania, and parts of North Africa and the Middle East. “Identifying sustainable ways to work with communities to take action to prevent and control modifiable risk factors for heart disease is essential for reducing the global burden of heart disease,” said George A. Mensah, M.D., F.A.C.C., F.A.H.A., director of the Center for Translation Research and Implementation Science at the National Heart, Lung, and Blood Institute (NHLBI). “The 2023 Almanac represents an important resource for using locally relevant data to inform local-level actions for heart-healthy and thriving communities.” [1].

Coronary artery disease is caused by plaque buildup in the wall of the arteries that supply blood to the heart (called coronary arteries). Plaque is made up of cholesterol deposits. Plaque buildup causes the inside of the arteries to narrow over time. This process is called atherosclerosis.

Three-vessel coronary lesions are more prevalent in subjects with greater volume of epicardial fat and in the male gender [2]

The detection rate of fear of recurrence in elderly patients with Coronary artery disease was relatively high but could be reduced by active interventions and enhancing social support [3].

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