

Cardiovascular Disease, Risk Factors and Prevention

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Introduction

Cardiovascular Disease (CVD) is the leading cause of death in many developed countries and remains one of the major diseases strongly affected by the diet. Nutrition can affect CVD directly by contributing to the accumulation of vascular plaques and indirectly by regulating the rate of aging. Consumption of ultra-processed foods worldwide study found that eating more plant-based foods reduces the risk of heart failure by 40%, while another one has increased substantially, studies have shown that higher consumption of ultra-processed foods was associated with higher risks of cardiovascular, coronary heart, and cerebrovascular diseases. Recent found that a vegetarian diet cuts the risk of heart disease death [1].

Risk factors

Age, sex, tobacco use, physical inactivity, excessive alcohol consumption, unhealthy diet, obesity, genetic predisposition and family history of cardiovascular disease, hypertension, diabetes mellitus, hyperlipidemia, undiagnosed celiac disease, psychosocial factors, poverty, low educational status, air pollution, and poor sleep are just a few of the risk factors for heart disease. While each risk factor's specific contribution differs by community or ethnic group, the cumulative impact of these risk factors is quite constant. Some of these risk factors are unchangeable, such as age, sex, or family history/genetic predisposition. However, many key cardiovascular risk factors may be altered by lifestyle changes, societal changes, and pharmacological therapy (for example, prevention of hypertension, hyperlipidemia, and diabetes) [2].

Unhealthy food, physical inactivity, cigarette use, and problematic alcohol consumption are the most major risk factors for heart disease and stroke. Individuals may have symptoms such as high blood pressure, high blood glucose, high blood lipids, and being overweight or obese as a result of behavioural risk factors. These "intermediate risk factors" are detectable in primary care settings and signal a higher risk of heart attack, stroke, heart failure, and other consequences [3].

Tobacco cessation, salt reduction in the diet, increased fruit and vegetable consumption, regular physical exercise, and avoidance of problematic alcohol use have all been demonstrated to lessen the risk of cardiovascular disease. Health policies that create settings that make healthy options inexpensive and accessible are critical for encouraging individuals to develop and maintain healthy habits.

CVDs are also influenced by a number of underlying factors. Globalization, urbanisation, and population ageing are three primary drivers of social, economic, and cultural change. Poverty, stress, and inherited factors are also CVD predictors.

Furthermore, pharmacological therapy for hypertension, diabetes, and high blood lipids is required to lower cardiovascular risk and prevent heart attacks and strokes in people with these diseases.

Prevention

If recognised risk factors are avoided, up to 90% of cardiovascular disease may be prevented.

1. Maintaining a healthy diet, such as the Mediterranean diet, a vegetarian, vegan, or another plant-based diet are being used to avoid cardiovascular disease.
2. Substituting healthy fats for saturated fats: Clinical research demonstrate that substituting polyunsaturated vegetable oil for saturated fat reduces CVD by 30%. Decreased saturated fat consumption combined with increased polyunsaturated and monounsaturated fat intake is related with lower incidence of CVD in various populations, according to prospective observational studies.
3. If you are overweight or obese, you should reduce your body fat. Weight reduction can be difficult to differentiate from dietary changes, and there is little research on weight-loss programmes. In observational studies of people with severe obesity, weight loss after bariatric surgery is associated with a 46% reduction in cardiovascular risk.
4. Limit your alcohol consumption to the daily recommendations. People who consume alcoholic beverages in moderation have a 25%-30% decreased risk of cardiovascular disease. People who are genetically inclined to consume less alcohol, on the other hand, had lower incidences of cardiovascular disease, indicating that alcohol may not be beneficial in and of itself. Excessive alcohol use raises the risk of cardiovascular disease, and drinking alcohol is linked to an increased chance of having a cardiovascular event the next day.
5. Reduced non-HDL cholesterol levels. Treatment with statins decreases cardiovascular mortality by roughly 31%.
6. Stop smoking and stay away from second-hand smoke. Stopping smoking lowers your risk by roughly 35%.
7. At least 150 minutes of moderate activity each week (2 hours and 30 minutes).
8. If your blood pressure is too high, try to lower it. By lowering blood pressure by 10 millimetres of mercury, you can reduce your risk by 20%. Even at normal blood pressure levels, lowering blood pressure appears to be useful. Reduces psychological and social stress. Imprecise definitions of what constitutes psychological therapy may make this measurement more difficult. In people with a history of heart disease, mental stress-induced myocardial ischemia is linked to an increased risk of cardiac issues. In certain people, severe mental and physical stress causes Takotsubo syndrome, a kind of cardiac malfunction. Stress, on the other hand, has little influence on hypertension. The value of certain relaxation techniques is debatable.
9. Sleep deprivation also increases the risk of high blood pressure. Adults require 7-9 hours of sleep every night. Sleep apnea is also a significant concern since it leads one to stop breathing, putting stress on the body and increasing the risk of heart disease [4,5].

Considerations for Molecular and Clinical Diagnosis

For the diagnosis of monogenic cardiovascular illnesses, genetic diagnosis (i.e., initial categorization based on the existence of a mutation, followed by risk stratification) is not generally accessible. Clinical diagnoses are now established by physical examination and regular testing, such as echocardiography to detect hypertrophic cardiomyopathy or electrocardiographic study of the long-QT syndrome. 91) Following that, research-oriented genotyping of chosen pedigrees is used to make a genetic diagnosis. Current research focuses on the natural history of monogenic disorders in large groups of patients with specific mutations in order to identify people at high risk for cardiovascular events, asymptomatic carriers for whom pharmacologic interventions can delay or prevent disease, and unaffected family members whose health concerns can be addressed. Current research is uncovering functionally relevant changes in DNA sequences that can establish a molecular diagnosis and impact patients' outcomes in the case of complicated features in more prevalent cardiovascular disorders.

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