

Lifestyle management to reduce cardiovascular risk

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Introduction

Cardiovascular disease (CVD) remains the leading cause of death in most developed countries. Although the world-wide INTERHEART study conducted in 52 countries found the risk of CVD to be higher in high-income countries, risk factor modification is also greater in these countries. The prevalence of CVD in developing countries is rapidly increasing.¹ In South Africa, 43 percent of deaths occur due to non-communicable diseases and CVD accounts for almost a fifth of these deaths.² This article discuss the modifiable risk factors for CVD and their management to reduce cardiovascular risk.

Modifiable Risk factors

Various risk factors have the potential to increase the likelihood of a person developing cardiovascular disease³ and, of these, the following nine modifiable risk factors have been found to account for over 90 percent of first myocardial infarctions (MI):¹

- Smoking
- Dyslipidaemia
- Hypertension
- Diabetes mellitus
- Abdominal obesity
- Lack of physical activity
- Psychosocial factors
- Poor diet
- Excessive alcohol consumption

The five leading risk factors that can be modified include hypercholesterolaemia, diabetes, hypertension, obesity and smoking. These are estimated to be responsible for more than half of deaths due to cardiovascular disease.¹ Table 1 provides a summary of the definitions of some of the risk factors for CVD.¹ This article, however, addresses lifestyle modifications to reduce cardiovascular risk and will not discuss these conditions any further.

Table 1: Definitions of risk factors for cardiovascular disease.^{1,3,4}

Risk factors	Definition
Blood pressure	Systolic \geq 140 mmHg Diastolic \geq 90 mmHg Or patient on treatment for hypertension
LDL cholesterol level	> 3 mmol/L
HDL cholesterol level	<1.0 mmol/L for men <1,2 mmol/L for women
Fasting glucose level	> 7 mmol/L
2 hour glucose level	>11.1 mmol/L

Smoking cessation

Smoking is a leading risk factor for CVD.⁴ Smoking causes narrowing of blood vessels resulting in increased blood pressure and heart rate.^{4,5} Smoking also causes an increase in red blood cell formation making the blood thicker with less effective oxygen delivery. Smoking increases sensitivity of platelets resulting in easier clot formation.^{4,5} Serum cholesterol levels of triglycerides and low-density lipoprotein (LDL) are increased while high density-lipoprotein (HDL) levels are decreased.^{4,5} The combination of these effects ultimately increases the risk of MI six-fold in women and three-fold in men who smoke at least 20 cigarettes a day when compared to non-smokers.¹

Smoking cessation results in the following health benefits:

- Heart rate and blood pressure drops within 20 minutes⁶
- Carbon monoxide levels drop to normal within 12 hours⁶
- Risk of cardiovascular disease is reduced to that of a non-smoker within 3 to 5 years following cessation⁷

The benefits of smoking cessation are seen regardless of how long or how much the patient has previously smoked.¹

Diet and weight loss

Following a healthy diet is vital for reducing two major risk factors for CVD i.e. blood pressure levels and cholesterol levels.^{8,9} For patients with high blood pressure, salt intake should be limited to less than 5 g per day (2 400 mg sodium), but even reducing daily sodium intake by as little as 1 000 mg, can help reduce blood pressure.^{8,9}

To reduce cholesterol levels, intake of saturated fat should be reduced and should ideally not exceed 5 to 6 percent of daily caloric intake.⁸ Patients should be advised to eat plenty of fruits, vegetables and whole grains. Diets should include low-fat dairy products, poultry, fish (at least twice a week of which at least one is oily fish), legumes, non-tropical vegetable oils and nuts.^{7,8} Both the Mediterranean diet and the DASH diets are considered to be heart-healthy diets, but it is also important to adapt diets to include personal and cultural food preferences.^{8,9} Intake of sweets, sugar-sweetened beverages and red meats should be limited.⁷

Obesity is associated with increased risks for CVD and is probably second only to smoking as a leading avoidable cause of premature death.¹ In addition to increasing blood pressure and cholesterol levels, obesity is also a risk factor for developing insulin resistance and type 2 diabetes.⁷ In addition to the risk associated with obesity, patients with significant fluctuations in body weight are also at increased risk of coronary heart disease (CHD) and CVD.⁷

Physical activity

Exercise, even of moderate intensity, may have a variety of beneficial effects including a reduction in blood pressure, weight loss, an increase in HDL cholesterol and less insulin resistance. The degree of cardiovascular fitness is associated with a reduction in CHD and death due to CVD.¹ Resistance training has also been shown to lower blood pressure, decrease waist circumference, improve insulin resistance and cholesterol profiles.¹ Exercise of moderate to vigorous intensity is recommended for an average of 40 minutes at a time at least three to four times per week.⁹ Alternatively, vigorous aerobic exercise in episodes of at least ten minutes per session can be spread throughout a week to add up to one hour and 15 minutes per week. An equivalent combination of moderate and vigorous intensity exercise is also acceptable.⁷

Alcohol consumption

Although heavy drinkers of alcohol have an increased risk of CVD, studies have shown that moderate intake of alcohol - one to two drinks per day - had a 20 percent reduction in the risk of death due to CVD compared to non-drinkers. This may be due to beneficial increases in HDL cholesterol.⁷

Alternative approaches

Herbs and supplements have been used to prevent heart disease and reduce its symptoms by lowering blood pressure, improving breathing and improving heart function.

- Coenzyme Q10 may relieve symptoms of cardiovascular disease by reducing oxidative stress.¹¹
- Green tea and pomegranate contains antioxidant chemicals that may reduce blood pressure and development of atherosclerosis.¹¹
- Omega-3 fatty acids, found in fatty fish, are linked to lower blood pressure, better blood lipid profiles and a reduced risk of death from CVD.¹¹

There are also combination herbal remedies that may reduce blood pressure. These remedies may be used in conjunction with lifestyle approaches for added benefit.

Conclusion:

CVD is the leading cause of death in most developed countries.¹ Death from CVD is also rapidly increasing in developing countries.¹ A variety of lifestyle factors significantly impact on the risk of developing CVD.¹ Lifestyle modifications have been shown to reduce the risk of CVD and should be emphasized at every opportunity to reduce deaths from CVD.

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