



Understanding heart disease - risk factors

Most people who develop heart disease have recognised risk factors which have contributed to the cause of the disease. The so called "major risk factors" include a raised cholesterol level in the blood, raised blood pressure and smoking.

Cholesterol - Coronary heart disease arises through cholesterol being deposited within the inner lining of the coronary arteries. These arteries provide the heart muscle with blood. They lie on the surface of the heart forming a crown (corona) around it. As the heart beats, they twist and bend. Cholesterol is deposited at the sites of major bending and at the division of the arteries. Thus, the higher the cholesterol levels in the blood, the greater the chance of deposits forming at these sites.

Blood pressure - If the pressure of the blood in the arteries is raised, the stress at the sites of bending and division of the arteries is greater. Thus, a high blood pressure speeds the deposition of the cholesterol in the artery walls.

Smoking - Cigarette smoke contains many chemicals, including nicotine and carbon monoxide. Some of these chemicals and/or the carbon monoxide damage the inner layer of the arteries. That damage permits more rapid entry of cholesterol into the artery wall. Cigarette smoking also leads to blood clotting in the arteries, leading to heart attack.

Diabetes - Diabetes is another risk factor. Many diabetics have a high cholesterol level and/or raised blood pressure. Other biochemical changes in diabetics are also considered to accelerate the development of coronary heart disease.

Obesity and overweight - The fatter the person, the more likely the cholesterol is to be high, the blood pressure raised and the blood to clot. Clots are less likely to be removed by normal bodily processes.

Inactivity - Those who are inactive (the "couch potatoes") are more likely to have heart attacks, heart disease and early death than those who are generally active (moderately active seems to be enough). The inactive are also more likely to have higher cholesterol, raised blood pressure, to be overweight and even to smoke. However, there are other mechanisms. Just being inactive (without other risk factors) is enough to increase the chances of heart disease.

So far we do not know why this is. It may be related to mechanisms of blood clotting and clot removal, but there are many other possibilities.

Family history - In the background of most diseases lies genetic inheritance. The biological makeup of each individual differs from all others (except in identical twins). To some extent we inherit tendencies which in part determine levels of blood pressure, cholesterol, blood glucose, clotting tendencies, body build and response to all internal and external stresses including responses to all aspects of existence! Thus, a family history of heart disease is a strong marker of risk. We must remember we usually inherit tendencies rather than diseases. It is possible to overcome one's inherited tendencies through protective behaviours. Thus, those with a positive family history can gain enormous advantage by moderating their fat and food intake, by being active and by not smoking.

Gender and age - Being a male confers a disadvantage in cholesterol levels and blood pressure and men are more likely to develop coronary heart disease in middle age. Risk then rises progressively with the passage of years. The risk for women is much less until after the menopause when hormonal changes, coupled with higher blood pressure, higher cholesterol and weight gain progressively increase the risk. Irrespective of gender and age, we have the capacity to improve our risk levels markedly through our behaviours.

Dr Alan Goble
Cardiology Consultant
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