Information for women

Coronary heart disease

Women's Health Concern

A confidential independent service for women and their partners

Coronary heart disease (CHD) is usually caused by a condition called atherosclerosis, which occurs when fatty material (plaque) builds up on the walls of the arteries. This narrows the arteries, which in turn causes the blood flow to the heart to slow down or stop. CHD is the leading single cause of death in both men and women in the UK, Northern Europe and North America. Women are six times more likely to die from heart and circulatory disease than from breast cancer.

Risk factors

Ageing is an important risk factor for CHD. Other risk factors are the genes you inherit, diseases such as diabetes and lifestyle habits. For women, menopause is a risk factor; providing they do not have diabetes or smoke, premenopausal women are largely immune to CHD because of the protective effects of estrogen. Cholesterol, a type of fat-protein combination used by the body to build cell walls and make certain hormones, is closely associated with heart disease. Low Density Lipoprotein Cholesterol (LDL) is the "bad" cholesterol which may be deposited in artery walls. High levels of LDL in the blood are linked to increased risk of CHD. High density lipoprotein cholesterol (HDL) is the "good" type. High levels of HDL cholesterol are associated with a reduced CHD risk. High levels of triglycerides, another type of blood fat, are also associated with an increased risk of CHD.

Eating fatty foods, particularly those rich in animal fats, may result in raised cholesterol levels, although raised cholesterol in most people is due to overproduction in the liver which is genetically determined. Being overweight increases levels of both cholesterol (especially LDL) and triglycerides. Smoking reduces beneficial HDL while exercise and moderate alcohol consumption may increase it. Sometimes high cholesterol levels are inherited and have to be lowered with medical treatment.

Obesity increases the risk of CHD. Being overweight puts extra strain on the heart muscle, raises harmful blood fat levels, increases the risk of high blood pressure and blood clots, and affects blood sugar control.

Blood pressure is another risk factor. Raised blood pressure also strains the heart and is associated with thickening of the heart muscle. It is also linked to abnormal cholesterol patterns.

Diabetes mellitus is a condition where the body is unable to clear sugar from the blood effectively. It may be due to poor insulin production by the pancreas (type 1 diabetes) or body tissues failing to respond to insulin action, known as "insulin resistance" (type 2 diabetes). All patients with type 2 diabetes are insulin resistant, but some people can be insulin resistant without actually being diabetic. Insulin resistance is a major risk factor for CHD. High sugar levels and high insulin levels both contribute to the development of fatty deposits in the arteries.

Smoking is the most preventable cause of CHD. Cigarette smoking damages blood vessels as well as lowering HDL cholesterol levels. Even smoking just one cigarette per day gives a substantial risk. Women smokers also experience an earlier menopause than non-smokers. Menopause removes the protective effect of female sex hormones. After menopause, rates of CHD in women increase and eventually catch up with those seen in men.

A family history of CHD is important to consider, especially if it affects your female relatives. Ethnic origin may also have an influence. Women of South Asian ethnic origin are more prone to heart disease.

Symptoms of CHD

Chest pain originating from the heart, known as angina pectoris, is the main symptom of CHD. Typically, it is described as a heavy or crushing pain across the chest, often spreading down the left arm. Frequently it is brought on by physical exertion. Angina occurring at rest usually signifies a worsening condition. If it increases in frequency and severity it may herald a heart attack. Coronary heart disease may lead to a heart attack, heart failure or sudden death, without any warning symptoms.

Heart attacks

If too little blood reaches the heart muscle due to a blocked artery, the affected part of the heart will die. If a coronary artery is suddenly blocked due to a plaque rupturing and releasing fatty material, the result is a heart attack. Sudden death may occur if the electrical system which regulates the heart is disrupted. Or the function of the heart muscle may simply be impaired so that it is less able to pump blood around the body. This is known as heart failure and it is often accompanied by shortness of breath and swelling of the ankles, feet and legs.

Microvascular angina

This condition affects women much more than men. It consists of an angina-type chest pain, but no obvious obstructions of the major coronary arteries due to fatty deposits. It is due to either malfunction or spasm of the tiny blood vessels in the heart muscle. Patients with microvascular angina are much less likely to develop a heart attack, but the chest pain can be just as debilitating as that seen with narrowing of the major coronary arteries.

Diagnosis and treatment

SSymptoms of angina or breathlessness may suggest CHD. Measuring the electrical activity of the heart with an electrocardiogram (ECG) whilst exercising on a treadmill can reveal CHD related abnormalities, although this has been largely superseded. An echocardiogram (sound wave investigation) can be performed whilst exercising on a treadmill or receiving a drug to speed up the heart (stress echocardiogram) and abnormalities will indicate the presence of CHD. Radionuclide scanning is another diagnostic technique which involves tracking a radioactive substance carried by the blood to the heart and seeing if there is uniform uptake into the heart muscle.

The definitive way of diagnosing CHD is by means of a coronary angiogram or through magnetic resonance imaging (MRI). Traditionally, a tube is inserted into the major artery in the groin and pushed up to the coronary arteries. Dye is injected and observed on an X-ray monitor as it passes through the blood vessels. More recently, computed tomography (CT) scanning is used to visualize the coronary arteries (CT angiogram). Any blockages in the coronary arteries will show up. Cardiac magnetic resonance imaging (CMR) can identify even small abnormalities in blood flow to the heart muscle, including the microcirculation (as in microvascular angina) and is currently the most sophisticated technique.

If you have a heart attack, you will usually be admitted to hospital for emergency treatment. Patients who develop angina or who are recovering from a heart attack will often have a coronary angiogram. In some patients a technique called angioplasty may be employed, which inflates a small balloon inside the blocked artery and opens the blockage. A small metal mesh, called a stent, can be left in place to stop the artery from blocking again. Some stents are impregnated with drugs to enhance the prevention of further blockages. Further procedures may include a bypass operation, which uses grafts of healthy blood vessels to re-route blood around the site of a blockage.

Patients with less severe CHD, or those who are unsuitable for these treatments, can be given drugs to help relieve angina pain. The drugs, which include nitrates, beta-blockers, calcium channel blockers, piperazine derivatives and selective sinus node IF inhibitors, help to dilate the arteries and restore their normal function.

This fact sheet has been prepared by Women's Health Concern and reviewed by the medical advisory council of the British Menopause Society. It is for your information and advice and should be used in consultation with your own medical practitioner.

Prevention

All women who have had a heart attack should initially take blood thinners, either low dose aspirin or clopidogrel. Many may be given beta-blocker drugs and drugs such as statins to lower cholesterol. Treatment of raised blood pressure and of insulin resistance, including diabetes, is essential. Women who have had heart attacks show better survival rates if they were using hormone replacement therapy (HRT) at the time. HRT is currently not licensed for CHD prevention. However, the totality of the evidence from clinical trials and observational studies shows clear benefit for HRT in the prevention of CHD in postmenopausal women, particularly when starting treatment fairly close to the onset of menopause. The starting doses of HRT are probably crucial in determining benefit and avoiding any harm; the older the women, the lower the starting dose must be. The types of estrogen, and particularly progestogen, may be important as may be the routes of administration. In some women HRT may give symptomatic relief of angina, especially in those with microvascular angina.

Useful contacts

The British Heart Foundation
www.bhf.org.uk
Heart Helpline: www.bhf.org.uk/informationsupport/heart-helpline

Sources

MedlinePlus Medical Encyclopedia
U.S. National Library of Medicine
www.nlm.nih.gov/medlineplus/ency/article/007115.htm

Author: Professor John Stevenson in collaboration with the medical advisory council of the British Menopause Society

PUBLICATION DATE: JANUARY 2024
REVIEW DATE: JANUARY 2027

Q2P/2324