

Rheumatic heart disease

In Australia most heart disease occurs in the middle aged or elderly populations. It is usually due to coronary artery disease, which may lead to heart attacks and strokes. These conditions arise through high cholesterol levels (particularly LDL cholesterol), high blood pressure, smoking, overweight and diabetes, physical inactivity and (some believe, but not this author) self-reported chronic psychological stress. These matters have been addressed in earlier newsletters (copies can be obtained at www.heartresearchcentre.org or by Telephoning us on (03) 93268544).

The pattern of heart disease is different in communities based on agriculture and the production of handmade goods (for example, carpet making, using household or aggregated labour, including children). In these communities, rheumatic heart disease is equal to or more frequently present than coronary heart disease. This commentary addresses rheumatic heart disease.

In Australia and other developed countries, medical services and preventive health care programs suppress the risk of developing rheumatic heart disease. The disease remains common, however, in disadvantaged and indigenous communities in developed countries.

The initial episode is one of acute rheumatic fever. This is usually caused by a throat infection from a common bacterium (a streptococcus). This bacterium is readily transferred to others through coughing or other contact, particularly in children.

About two weeks later an abnormal response occurs in the immunity processes to fight off the products of the bacterium. This response usually involves joint pains which may move from one joint to another. An inflammatory response may also occur on one or more of the heart valves. This response may lead to progressive thickening and stiffening in a valve over the following years.

These changes may lead to narrowing (stenosis) or leaking (incompetence) of the valve. The heart's pumping function becomes inefficient. The shape, size and function of the heart muscle is affected. This process may lead to heart failure following the acute fever attack, or it may become apparent after repeated episodes.

The streptococcus is sensitive to penicillin and other antibiotics. Thus, treatment of the illness with penicillin may abort its consequences. Rheumatic heart disease usually produces heart murmurs. These murmurs usually indicate stenosis or incompetence of either the mitral valve or aortic valve. The mitral valve controls the inflow of blood into the left ventricle (the major pumping chamber of the heart). The aortic valve controls the forward flow of blood from the left ventricle into the aorta. The early recognition of a heart murmur is due to abnormal turbulence of forward flow through the valve (with developing stenosis) or of backward flow (with incompetence). Progress of the abnormal flow occurs slowly. Symptoms such as shortness of breath, palpitations, and ankle swelling develop later.

While medication may control these symptoms, open heart surgery is usually required in due course. The operation involves opening the chest to operate on the affected valve(s).

This is major surgery but the benefits are enormous. Symptoms and disability are removed and a long life expectancy is anticipated.

Of course all of this can be minimised or prevented by early recognition of rheumatic fever and the administration of short and long term antibiotic treatment, usually with penicillin. Long term antibiotic treatment is usually required for years or decades once the tendency of rheumatic response to infection is recognised.

Without recurrent episodes of acute rheumatic fever, progressive change in the heart valve is slow. Thus, it may be many years before direct surgical intervention is required to open up a narrowed valve or to replace a valve with an artificial valve prosthesis.

In poor countries or through adverse local social circumstances, early intervention with antibiotics and later surgery may be unavailable or unaffordable; that may lead to heart failure and early death. In Australia, most of us are spared the deterioration of cardiac function and thus a normal life may be anticipated.

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2009

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