
Rheumatic heart disease

Summary

- RHD is associated with damage to the valves of the heart.
 - RHD develops after ARF and particularly with recurrent ARF.
 - The prevalence of rheumatic heart disease is high in remote Aboriginal and Torres Strait Islander communities, Maori and Pacific Islander peoples, and those who have migrated to Australia from low to middle income countries where ARF and RHD remains common.
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While rheumatic heart disease (RHD) may develop after a single bout of acute rheumatic fever (ARF), it is typically associated with recurrent episodes of ARF. ARF usually occurs during childhood between the ages of 5 and 15 years. RHD can damage any part of the heart including the valves, the lining of the heart or the heart muscle, but more often damages the heart valves, especially those on the left side of the heart.

Stopping episodes of recurrent ARF can prevent rheumatic heart disease. ARF is caused by infection with the Group A *Streptococcus* (GAS) bacterium. This usually involves GAS infection in the throat (pharyngitis) or 'strep throat'. There is ongoing debate about whether ARF may also occur with a Group A *Streptococcus* skin infection (impetigo, pyoderma).

Rheumatic heart disease (RHD) is common in remote Aboriginal communities

In Australia, the prevalence of RHD is highest in remote Aboriginal and Torres Strait Islander communities. The risk of death from RHD in these communities is 20 times that of Australians in the general population. Also at higher risk are Maori and Pacific Island peoples and those who have migrated to Australia from low to middle income countries where ARF and RHD remain widespread.

Risk factors of RHD

Risk factors include poverty, overcrowding and reduced access to medical care. Stopping episodes of recurrent ARF can prevent rheumatic heart disease. Once acute rheumatic fever is diagnosed, stopping further episodes of ARF can halt progression of the disease. Treatment can manage symptoms and reduce the risk of complications.

Symptoms of RHD

RHD does not always cause symptoms. When it does, symptoms may include:

- Chest pain
- Heart palpitations
- Breathlessness on exertion
- Breathing problems when lying down (orthopnoea)
- Waking from sleep with the need to sit or stand up (paroxysmal nocturnal dyspnoea)
- Swelling (oedema)
- Fainting (syncope)
- Stroke
- Fever associated with infection of damaged heart valves.

Rheumatic fever explained

Without antibiotic treatment, throat infection from Group A *Streptococcus* can cause acute rheumatic fever. In susceptible people, an immune response occurs two to three weeks following an untreated Group A *Streptococcus* throat infection. This response can target the brain, skin, joints and heart, and can cause inflammation.

Acute rheumatic fever can be undiagnosed and this can cause failure to prevent or recognise rheumatic heart disease. Failure to recognise ARF and limited access to healthcare can contribute to the under-diagnosis of ARF.

RHD affects heart valves

The heart is a double pump with four chambers. Each chamber is sealed with a valve. The valves open and close in one direction only, so that the blood cannot flow backwards.

RHD often involves damage to the heart valves. Typically, the damaged heart valve cannot open or shut properly. This interferes with the proper flow of blood through the heart. Without treatment, the damaged valve may continue to deteriorate.

Complications include heart failure, which means the heart is unable to pump blood effectively. The strain causes the heart to enlarge. Other complications of RHD include infection of damaged heart valves (infective endocarditis) and stroke due to clots forming in the enlarged heart or on damaged valves. These clots then break off (embolise) and cause blockage in blood vessels in the brain and stroke.

Diagnosis of rheumatic heart disease

Diagnosis may include:

- Physical examination – while a heart murmur may suggest RHD, many patients with RHD do not have a murmur
- Medical history – including evidence of past ARF or strep infection
- Chest x-ray – to check for enlargement of the heart or fluid on the lungs
- Electrocardiogram (ECG) – to check if the chambers of the heart have enlarged or if there is an abnormal heart rhythm (arrhythmia)
- Echocardiogram – to check the heart valves for any damage or infection and assessing if there is heart failure. This is the most useful test for finding out if RHD is present.

Treatment of rheumatic heart disease

Treatment depends on the severity of rheumatic heart disease, but may include:

- Hospital admission to treat heart failure
- Antibiotics for infection (especially of the heart valves)
- Blood-thinning medicine to prevent stroke or thin blood for replacement valves
- Balloons inserted through a vein to open up stuck valves
- Heart valve surgery to repair or replace damaged heart valves.

Complications of rheumatic heart disease

Medical treatment of rheumatic heart disease includes reducing the risk of complications. Options may include:

- Regular check-ups with a cardiologist (heart specialist) to monitor the heart
- Up-to-date flu (influenza and pneumococcal) vaccinations
- Regular (preventative) antibiotic to prevent Group A *Streptococcus* throat infections and recurring ARF
- Early presentation, diagnosis and, where appropriate, antibiotic treatment of sore throats
- Good dental hygiene (tooth brushing and flossing, dental check-ups, fluoridated water supply), as oral bacteria entering the bloodstream can increase the risk of complications such as inflammation of the inner lining of the heart
- Antibiotics – may be given to some people before some dental or surgical procedures to prevent bacterial infection of the damaged areas of the heart
- Good prenatal care, as pregnancy can make rheumatic heart disease worse.

Prevention of rheumatic heart disease

RHD is a complication of untreated ARF. People who have had ARF are at increased risk of developing RHD. Prompt diagnosis of ARF and taking preventative antibiotics can prevent RHD. Prophylactic antibiotics are continued until the person is 20 to 40 years old, depending on the time of the last episode of ARF and whether

they have RHD or not.

Ideally, ARF and RHD can be prevented. Antibiotic therapy (such as penicillin) to treat Group A *Streptococcus* throat infection can dramatically reduce the risk of ARF and its complication, rheumatic heart disease. If ARF or RHD do occur, long-term antibiotics can reduce progression to more severe disease.

Where to get help

- Your doctor
- Cardiologist
- Heart Foundation Tel. 1300 36 27 87
- HeartKids Victoria Tel. (03) 9329 0446
- RHD Australia Tel. (08) 8922 8019

Things to remember

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