

Rheumatic Heart Disease Causes and Treatment

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Introduction

Rheumatic heart disease (RHD) is a life-threatening heart condition which results from damage to heart valves caused by one or several episodes of rheumatic fever, an autoimmune inflammatory reaction to infection with streptococcal bacteria (streptococcal pharyngitis or strep throat). The bacterium *Streptococcus pyogenes* (group A streptococcus) can pass easily from person to person in the same way as other upper respiratory tract infections. These infections are most common in childhood. In some cases, repeated strep infections can lead to rheumatic fever, which occurs when the immune system reacts against the tissues of the body, including inflaming and scarring the heart valves.

Rheumatic heart disease is caused by damage to the heart valves and heart muscle from the inflammation and scarring caused by rheumatic fever. Symptoms of rheumatic heart disease may include: Chest pain or discomfort, Shortness of breath, swelling of the stomach, hands or feet, Fatigue, Rapid or irregular heartbeat.

There is no cure for rheumatic heart disease and the damage to the heart valves is permanent. Patients with severe rheumatic heart disease will often require surgery to replace or repair the damaged valve or valves. Depending on the severity of disease, medication may also be needed to treat symptoms of heart failure or heart rhythm abnormalities. Medications which thin the blood to reduce the risk of blood clots may also be needed. In the case of serious disease, surgery may be required to repair or replace the heart valves. Effective early intervention can prevent premature mortality from rheumatic heart disease. There are three levels of prevention for rheumatic heart disease: reducing the risk factors for rheumatic fever (primordial prevention); primary prevention of rheumatic fever and rheumatic heart disease; and secondary prevention (prophylaxis) of rheumatic fever and rheumatic heart disease.

Primordial prevention aims to avoid episodes of strep throat by tackling poverty, improving living and housing standards, and increasing access to health care. Primary prevention of rheumatic fever can be achieved through the effective treatment of strep throat with appropriate antibiotics (penicillin). Secondary prophylaxis: Once a patient has been identified as having had rheumatic fever, it is important to prevent additional streptococcal infections as this could cause a further episode of rheumatic fever and additional damage to the heart valves. The strategy to prevent additional streptococcal infection is to treat a patient with antibiotics over a long period of time. The antibiotic treatment that is most effective in

preventing further infection is benzathine penicillin G, which is given by intramuscular injection every 3-4 weeks over many years.

While rheumatic heart disease can easily be prevented by effective management of strep throat, treatment at this early stage is often not achieved. Families may not have the means to access a healthcare facility or may not seek care due to low awareness of the potential risk of untreated strep throat. Healthcare workers may also not have the necessary knowledge to appropriately diagnose and manage a strep throat. Currently, a large proportion of those suffering rheumatic heart disease are not diagnosed or are diagnosed at a late stage when damage to the heart is very severe. When long-term treatment is required, access to care becomes an even greater issue, as it can be costly and challenging for patients to regularly visit a healthcare facility. A steady supply of benzathine penicillin G is an essential prerequisite for treatment of sore throat and to prevent recurrent infection. However, the antibiotic is prone to global shortages. While demand for the drug is rising, high manufacturing costs and low purchase prices have pushed some manufacturers out of the market. When the medication is not available, necessary long-term treatment regimens are disrupted.

Finally, in many rheumatic heart disease-endemic countries there is little or no access to life-saving heart valve surgery, or when it is available the costs may be too high if not covered as part of national health plans, putting families under increased financial strain.

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None.

Conflict of Interest

The author declared that there is no conflict of interest.