

# An Overview on Rheumatic Heart Disease

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## Perspective

Rheumatic heart disease occurs when rheumatic fever causes irreversible damage to the heart valves. When a streptococcal infection, such as strep throat or scarlet fever, goes undiagnosed or undertreated, heart valve damage can occur. Inflammation is caused by the body's immune reaction, which can lead to long-term valve damage [1]. The bacteria *Streptococcus pyogenes* (group A streptococcus) causes rheumatic heart disease, which can easily spread from person to person like other upper respiratory tract infections.

### Causes of rheumatic heart disease

Rheumatic fever, an inflammatory condition that can affect numerous connective tissues, including the heart, joints, skin, and brain, is the cause of rheumatic heart disease. Inflammation and scarring of heart valves can occur over time. This can cause the heart valve to constrict or leak, making regular heart function more difficult. Heart failure can arise from this condition, which can take years to develop [2].

Rheumatic heart disease is caused by valve inflammation caused by rheumatic fever. It's possible that the harm will be done right away. Repeated strep infections might also cause it to develop over time. Heart valve damage and constriction result from ongoing inflammation [3]. The mitral and aortic heart valves are commonly affected by this condition. Blood flow is regulated by these valves.

The disease tends to affect the mitral and aortic heart valves. These valves control blood flow. If the valves don't work, blood leaks backward into the heart instead of flowing out of the heart.

### Rheumatic heart disease signs and symptoms

Symptoms of rheumatic fever include:

- Fever
- Aching joints, particularly in the knees, ankles, elbows, and wrists
- Discomfort that shifts from one joint to another
- Fatigue
- 'Chorea' is a term for jerky, unpredictable body motions.
- A rash consisting of pink rings with a clear center and/or painless lumps under the skin near joints (both rare)
- A murmur in the heart

### RHD affects heart valves

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Received 04 January, 2022, Manuscript No. jcd-22-53064; Editor assigned: 6 January, 2022, PreQC No. P-53064; QC No. Q-53064; Reviewed: 18 January, 2022, Revised: 24 January, 2022, Manuscript No. R-53064; Published: 31 January, 2022, DOI: 10.37421/2329-9517.22.10.478

The heart is a four-chambered double pump. A valve separates each chamber. The valves only open and seal in one direction, preventing blood from flowing backwards. Damage to the heart valves is common in RHD. In most cases, the injured heart valve is unable to open or close normally. This obstructs the appropriate blood flow via the heart. The damaged valve may continue to worsen if not treated [4].

Heart failure is a complication in which the heart is unable to adequately pump blood. The heart expands as a result of the stress. Infection of damaged heart valves (infective endocarditis) and stroke due to clots developing in the enlarged heart or on damaged valves are two other consequences of RHD. These clots subsequently break off (embolize), obstructing blood arteries in the brain and resulting in a stroke [5-9].

### Rheumatic heart disease risk factors

- Poverty, overcrowding, and a lack of medical treatment are all risk factors. Rheumatic heart disease can be avoided by stopping
- Recurring ARF episodes: Once acute rheumatic fever has been recognized, preventing subsequent episodes of ARF can help to
- Slow the disease's course: Treatment can help you control your symptoms while also lowering your chance of problems.

### Rheumatic heart disease diagnosis

The following are examples of possible diagnoses:

- **Examination of the body:** While a cardiac murmur may indicate RHD, many RHD patients do not have one.
- **Chest X-ray:** To check for enlargement of the heart or fluid on the lungs, as well as indications of previous ARF or strep infection
- **Electrocardiogram (ECG):** To determine if the heart chambers have enlarged or if an abnormal heart rhythm (arrhythmia) exists.
- **Echocardiogram:** To examine the heart valves for any damage or infection, as well as to determine if heart failure exists. This is the most effective test for determining whether or not RHD is present.

### Rheumatic heart disease treatment

Treatment for rheumatic heart disease varies depending on the severity of the condition, however it may include:

- Hospitalization to treat heart failure
- Antibiotics (particularly for infections of the heart valves)
- Blood thinners (to avoid strokes or thin blood for replacement valves)
- Heart valve surgery to repair or replace damaged heart valves
- Balloons put into a vein to open up trapped valves

### Prevention of rheumatic heart disease

RHD is a side effect of untreated ARF. People who have had ARF are more likely to develop RHD. RHD can be avoided if ARF is diagnosed early and prophylactic antibiotics are taken. Prophylactic antibiotics are given until a person reaches the age of 20 to 40, depending on when the last episode of ARF occurred and whether or not they have RHD.

ARF and RHD can, in theory, be avoided. Treatment with antibiotics (such as penicillin) for a Group-A *Streptococcus* throat infection can drastically lower the incidence of ARF and its consequence, rheumatic heart disease. If ARF

or RHD develops, long-term antibiotics can help prevent the condition from progressing to a more serious stage [10].

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**How to cite this article:** Filippi, Emmanuelle. "An Overview on Rheumatic Heart Disease." *J Cardiovasc Dis Diagn* 10 (2022): 478.