

# Heart failure and atrial fibrillation in patients with rheumatic heart disease.

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## Introduction

Rheumatic heart disease (RHD) is a long-term consequence of rheumatic fever, which is caused by group A streptococcal infection. It is characterized by damage to the heart valves due to inflammation and scarring. The most commonly affected valves are the mitral and aortic valves, leading to regurgitation or stenosis. RHD remains a significant health problem in many developing countries, especially in sub-Saharan Africa and South Asia. One of the major complications of RHD is heart failure (HF). HF is a clinical syndrome that occurs when the heart is unable to pump blood adequately to meet the body's demands. It can be caused by a variety of conditions, including RHD. The prevalence of HF in patients with RHD varies depending on the population studied, but it is estimated to be between 30-60%. The risk of developing HF is higher in patients with severe valve disease, and those with a history of rheumatic fever [1].

Atrial fibrillation (AF) is another common complication of RHD. It is a cardiac arrhythmia characterized by rapid and irregular atrial contractions that result in ineffective atrial function. The prevalence of AF in patients with RHD is also high, ranging from 25-46%. The risk of developing AF is higher in patients with mitral stenosis, left atrial enlargement, and advanced age. The coexistence of HF and AF in patients with RHD is associated with a worse prognosis. HF in patients with AF is usually more severe and difficult to manage. AF can also exacerbate the symptoms of HF, leading to increased hospitalizations and mortality. Therefore, it is crucial to manage both conditions adequately in patients with RHD. The management of HF and AF in patients with RHD involves several strategies, including medical therapy, interventional procedures, and surgical management. The primary goal of treatment is to improve symptoms, prevent hospitalizations, and reduce mortality [2].

Medical therapy is the first-line treatment for HF and AF in patients with RHD. The medications used for HF include diuretics, angiotensin-converting enzyme inhibitors (ACEIs), beta-blockers, and aldosterone antagonists. Diuretics are used to relieve symptoms of fluid overload, such as dyspnea and edema. ACEIs and beta-blockers are used to reduce afterload and improve cardiac function. Aldosterone antagonists are used in patients with severe HF and reduced ejection fraction to prevent progression of the disease. The medications used for AF include rate control and rhythm control agents. Rate

control agents, such as beta-blockers and calcium channel blockers, are used to control the ventricular response to AF. Rhythm control agents, such as amiodarone and sotalolol, are used to restore and maintain sinus rhythm. The choice of therapy depends on the patient's symptoms, the presence of underlying heart disease, and the risk of adverse effects [3].

Interventional procedures are used in patients with RHD who have severe valve disease and symptoms of HF. Percutaneous balloon mitral valvuloplasty (PBMV) is a minimally invasive procedure that can relieve symptoms of mitral stenosis and improve cardiac function. PBMV involves inserting a balloon catheter into the narrowed valve and inflating it to open the valve. It is a safe and effective procedure in patients with favorable valve morphology. However, it is contraindicated in patients with severe mitral regurgitation, left atrial thrombus, and severe pulmonary hypertension [4].

In patients with HF and AF, cardiac resynchronization therapy (CRT) may also be considered. CRT involves implanting a device that synchronizes the contractions of the heart's ventricles to improve cardiac function. It is particularly beneficial in patients with HF and reduced ejection fraction who also have a wide QRS complex on electrocardiography. In addition to medical and interventional therapy, lifestyle modifications are also crucial in managing HF and AF in patients with RHD. Patients are advised to maintain a healthy weight, avoid smoking, limit alcohol consumption, and engage in regular physical activity. These measures can improve symptoms, reduce hospitalizations, and improve overall quality of life [5].

## Conclusion

HF and AF are common complications of RHD and are associated with a worse prognosis. The management of HF and AF in patients with RHD involves a multimodal approach, including medical therapy, interventional procedures, and surgical management. Lifestyle modifications are also important in improving outcomes. It is crucial to identify and manage both conditions adequately in patients with RHD to improve symptoms, reduce hospitalizations, and prevent mortality.

## References

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