

Adakole O.A.

ATRIAL FIBRILLATION AND HEART FAILURE TREATMENT

Tutor: PhD, senior lecturer Patorskaya O.A

*Department of Internal Diseases, Cardiology and Rheumatology with a Course of Advanced
Training and Retraining
Belarusian State Medical University, Minsk*

Atrial fibrillation (AF) is the most common arrhythmia among patients with heart failure (HF), and HF is the most common cause of death for patients presenting with clinical AF. AF and heart failure co-exist in up to 30% of patients because both share common mechanisms, including myocardial fibrosis and dysregulation of intracellular calcium and neuroendocrine function. Pharmacological treatments including β -blockers, digoxin, angiotensin-converting enzyme inhibitors and angiotensin receptor blockers can be useful in treating both of these conditions.

This study aims to evaluate the efficacy and safety of a combined therapeutic approach to improve cardiac function, restore normal heart rhythm, alleviate symptoms, reduce the risk of thromboembolism and enhance quality of life for affected patients.

This review analyses the interrelationship between atrial fibrillation (AF) and heart failure (HF), focusing on recent studies exploring their pathophysiology, treatment, and outcomes. A comprehensive literature search was conducted using PubMed, Scopus, and Cochrane Library for articles published between 2010 and 2025. The included studies comprised randomized controlled trials, cohort studies, and meta-analyses assessing the prevalence, mechanisms, and treatment outcomes of AF in HF patients.

Heart failure is often complicated by atrial fibrillation. Once atrial fibrillation has started it further enhances heart failure due to an uncontrolled rate with shortened filling time and provocation of tachycardiomyopathy. Absent atrial kick and irregularity of the ventricular rhythm also contribute. Considering these mechanisms, restoration of sinus rhythm is most beneficial but is associated with frequent recurrences. Before cardioversion, heart failure must be treated. ACE inhibition, initiated before cardioversion, may enhance maintenance of sinus rhythm by reducing neurohumoral activation. As a consequence, arrhythmogenic factors diminish and ventricular function may improve. β -blockade and amiodarone may have similar effects. And If cardioversion fails, adequate rate control is mandatory to prevent progressive ventricular dysfunction. Digitalis is the treatment of first choice, but when the heart rate remains uncontrolled, low-dose β -blockade should be given. If the ventricular rate remains uncontrolled despite drugs, atrioventricular node ablation with implantation of a pacemaker may be considered. Antithrombotic therapy is crucial for stroke prevention in patients with AF and HF.

The rate-control approach remains the standard therapy for atrial fibrillation in heart failure because current strategies at rhythm control have so far failed to positively impact mortality and morbidity. This is largely because of the shortcomings of current pharmacologic anti-arrhythmic agents. Surgical and catheter-based therapies are promising, but long-term data are lacking.