

Atrial Fibrillation: A Debilitating and Life-Threatening Disease

- Atrial fibrillation (AF), the most common arrhythmia,¹ is a complex, progressive, and debilitating disease.¹⁻³
- AF is an independent risk factor for other cardiovascular disease^{2,3} and increases the risk of stroke 5-fold.⁴
- AF approximately doubles the risk of all-cause mortality.⁵
- Patients with AF have significantly impaired quality of life.⁶

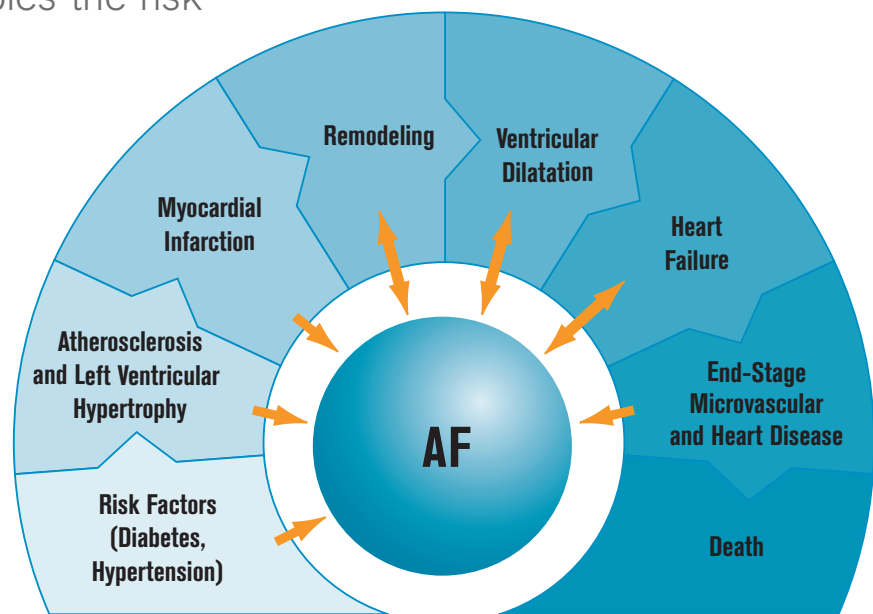


Figure 1. Atrial Fibrillation Increases Risk Along the Cardiovascular Continuum^{2,5}

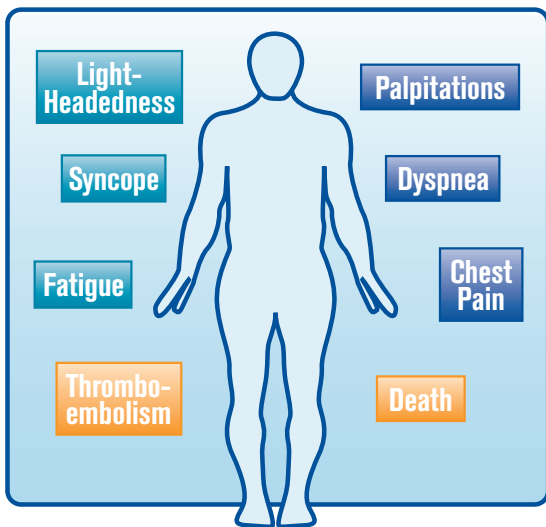
Introduction

AF, the most common cardiac arrhythmia, develops when the electrical signals that coordinate the muscle comprising the atria (upper chambers of the heart) become rapid and erratic. Atrial rate and rhythm then follow an accelerated and erratic pattern as well, impairing atrial contractile function and coordination with the ventricles (lower chambers) and, in turn, resulting in an irregular, often rapid heart rate that can compromise blood supply throughout the body.²

Clinical Presentation

Clinically, AF is associated with symptoms such as palpitations, chest pain, dyspnea, fatigue, and/or lightheadedness (Figure 2) and has been demonstrated to gradually worsen over time.² However, symptoms do not always correlate with the disease, and some patients have asymptomatic episodes.⁷

Figure 2. Clinical Presentation of Atrial Fibrillation

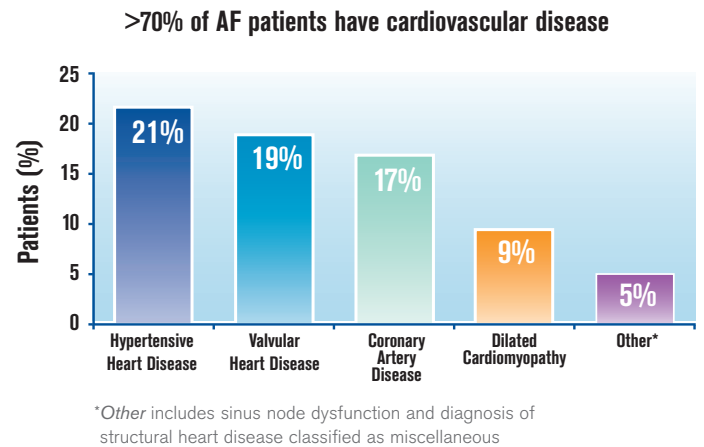


Underlying Disease and Atrial Fibrillation Risk Factors

In patients with AF, underlying cardiac disease often is present. The ALFA study (Figure 3), conducted in France, found that underlying structural heart disease

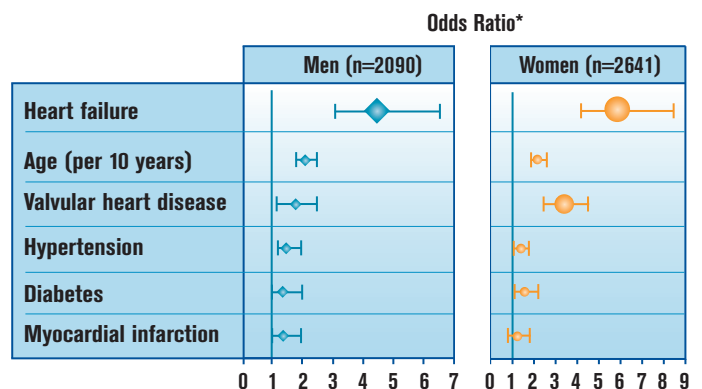
was present in more than 70% of patients, with the most commonly observed underlying cardiac disease states being hypertensive heart disease (~21%), valvular disorders (~19%), coronary artery disease (~17%), and dilated cardiomyopathy (~9%).⁸

Figure 3. Disease States Associated With Atrial Fibrillation: ALFA Study



Some cardiovascular and other diseases are actually risk factors for AF. In the Framingham Heart Study (which evaluated men and women who were between the ages of 55 and 94 years without a history of AF when they entered the study), the factors of heart failure, age, valvular heart disease, hypertension, and diabetes were identified as significant predictors of AF in both sexes; myocardial infarction was a significant predictor in men (Figure 4).⁹

Figure 4. Independent Risk Factors (Odds Ratio >1) for Atrial Fibrillation: Framingham Heart Study



*2-Year pooled logistic regression.

Clinical Impact

Morbidity

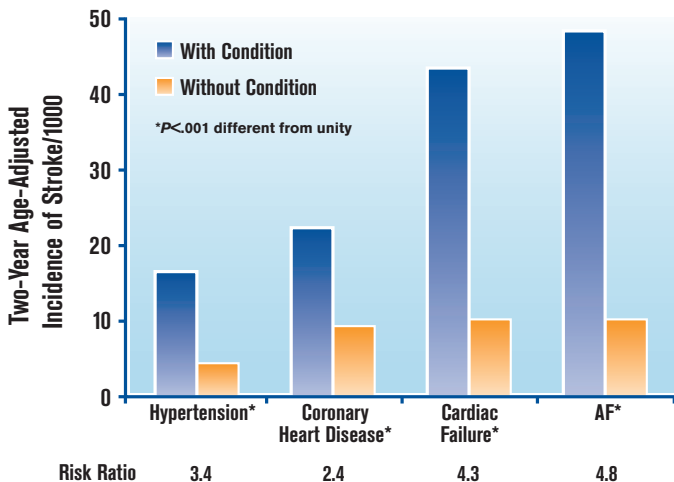
AF has a sobering clinical impact; in fact, the disease can be a risk factor for other cardiovascular-related diseases and pathology (Figure 5).^{2,3}

Figure 5. Other Cardiovascular-Related Conditions For Which Atrial Fibrillation Can Be a Risk Factor

- Cardiovascular events
- Stroke
- Hemodynamic impairment (eg, reduced cardiac output)
- Cardiomyopathies

Stroke is the most common and debilitating AF complication. AF increases the risk of this complication approximately 5-fold⁴ (Figure 6) and worsens its severity.¹⁰

Figure 6. Stroke Incidence in Persons With and Without Various Cardiovascular Conditions, Including Atrial Fibrillation: Framingham Heart Study



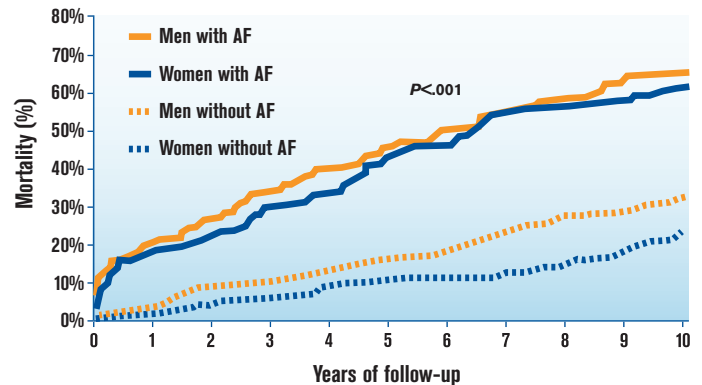
Other specific cardiovascular conditions associated with AF include valvular heart disease (most often mitral valve disease), coronary artery disease, and

hypertension, particularly when left ventricular hypertrophy is present. AF has been shown to worsen underlying cardiovascular disease.²

Mortality

AF ultimately can be deadly. Total mortality is approximately doubled among patients with AF compared with persons in normal sinus rhythm. In the Framingham Heart Study, it was shown that after adjustment for preexisting cardiovascular conditions, AF was associated with a 1.5- to 1.9-fold mortality risk compared with people in normal sinus rhythm (Figure 7).⁵ In addition, the presence of AF with other comorbid conditions such as myocardial infarction, hypertension, and heart failure can increase mortality.²

Figure 7. Atrial Fibrillation and Risk of Death: Framingham Heart Study



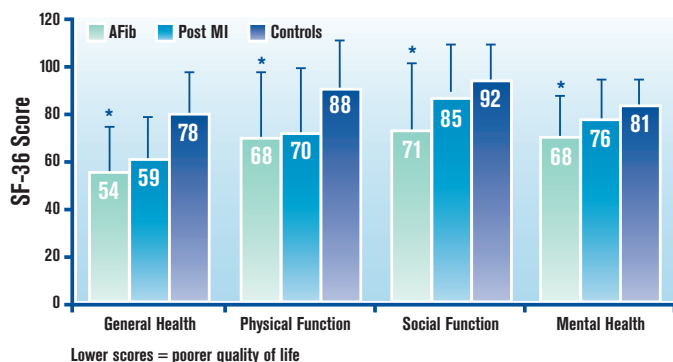
In-hospital mortality can be affected as well. As shown in the EuroHeart Failure Study, new-onset AF in hospitalized patients with heart failure was an independent predictor of in-hospital mortality.¹¹

Quality of Life

Another area in which AF can have significant impact is quality of life (QOL). AF symptoms may result in functional limitations, including decreased exercise tolerance, and interfere with QOL. Dorian and colleagues evaluated QOL in outpatients with AF (n=152) and compared it with QOL in both healthy controls and patients with other cardiovascular diseases (eg, postmyocardial infarction patients).⁶

Across all scales evaluated, both disease-specific QOL and generic QOL were significantly worse in AF patients than the other groups ($P < 0.05$) (Figure 8).

Figure 8. Atrial Fibrillation Adversely Affects Quality of Life:
Dorian et al Study



Reduction in AF burden and symptoms is a key short-term therapeutic goal for patients with the disease: reducing the frequency and duration of episodes should be coupled with a decrease in symptoms experienced during each episode (Figure 9).⁷

Figure 9. Key Goals of Atrial Fibrillation Treatment

• Long-term goals of treatment should include:

- Reduction in AF-associated mortality
- Reduction in frequency of hospitalizations
- Prevention of thromboembolism
- Improvement in quality of life

As with heart failure or angina, successful management in AF is defined as a decrease in:



Conclusion

AF is associated with substantial morbidity and mortality. Accordingly, long-term goals of treatment include reduction in AF-associated mortality, reduction in frequency of hospitalization, prevention of thromboembolism, which can lead to stroke, and improvement in QOL.^{2,3}

In conclusion, AF has a sobering clinical impact. AF can be a risk factor for other cardiovascular-related diseases, and in the presence of many comorbid cardiovascular diseases, AF can worsen a patient's clinical condition. AF also can be deadly; total mortality is approximately doubled among patients with AF compared with normal persons. The significant clinical impact of AF merits an invigorated focus on this complex disease. ■

Reference List

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