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Atrial Fibrillation: Current Management and Best Practices

INTRODUCTION

Atrial fibrillation (AF) is the most commonly diagnosed cardiac arrhythmia that results from structural or electrophysiological irregularities within the atrial tissue.^{1,2} Unlike patients in normal sinus rhythm, those with AF have atria that contract rapidly (at approximately 400-600 beats per minute) leading to a heart rhythm commonly referred to as “irregularly irregular.”¹ As a result, the heart’s ability to pump blood may be impaired, leading to pooling of blood in the atria in those affected with AF. This pooling of blood puts them at an increased risk of both stroke and systemic embolism.^{2,3}

In the United States, AF affects an estimated 2.7 million to 6.1 million people.⁴ Its prevalence is projected to rise to more than 12 million by 2030 and to 15.9 million by 2050.⁴⁻⁷ In men and women aged ≥ 40 years, the lifetime risk for developing AF is 1 in 4.⁸ The projected increase can be attributed in large part due to the anticipated growth in the US population, but it also reflects the aging US population and improved survivorship.⁷ One projection indicates that approximately 8 million of those affected by AF in 2050 will be aged ≥ 80 years.⁷ Given the significant complications associated with AF such as stroke, heart failure (HF), tachycardia, and myocardial infarction, this will have substantial economic implications.⁴

Although multiple underlying risk factors and biomarkers exist for developing AF (Table 1),² the most common risk factors include age greater than 60 years, diabetes, hypertension, coronary artery disease, prior myocardial infarction, HF, structural heart disease, prior open heart surgery, untreated atrial flutter, thyroid disease, chronic lung disease, obstructive sleep apnea, excessive alcohol or stimulant use, and serious illness or infection.^{2,9}

Several longitudinal studies have clearly documented that AF carries an increased risk of morbidity and is an independent risk factor for death. The most serious and disabling complication is thromboembolic stroke; AF serves as an independent risk factor for stroke.⁷ Estimates suggest that about 15% to 20% of US strokes can be attributed each year to AF.³ In addition to being the fifth leading cause of death for men, and fourth for women, in the United States (Figure 10), stroke is also a leading cause of serious long-term disability and is the leading preventable cause of disability.^{10,11} While longitudinal studies have shown that individuals in their 50s with AF have a relatively low annual risk for stroke, the risk steadily climbs as a person ages. In patients aged ≥ 80 years, the relative risk of stroke has been shown to be as high as 23.5%.⁷ HF is another negative outcome associated with AF. Estimates suggest 20% to 50% of AF patients will develop HF, and in patients with established HF, AF worsens outcomes.^{3,7}

The financial impact of AF is significant; its US estimated incremental cost is \$26 billion annually. Of this amount, approximately \$6 billion is directly attributed to AF, with the remainder linked to other cardiovascular and noncardiovascular expenses.⁵ In 1 evaluation of Medicare patients, when comparing those with AF to those without, AF patients had higher per-patient costs. In 2008, the excess cost in beneficiaries with AF was \$8705 greater than in those without.⁵ About 75% of AF costs are related to direct and indirect costs associated with hospitalization. Claims data support the finding that the high costs attributed to hospitalizations are driven both by initial hospitalizations and frequent readmissions. One retrospective analysis showed that 42% of patients admitted with an initial diagnosis for AF or atrial flutter were readmitted within 1 year, with inpatient admissions driving more than half the direct costs. This amounted to \$22,579 in mean per-patient direct cost from January 2004 through December 2007. Other drivers of the overall cost include prescription drugs, testing, and care in the outpatient setting.⁷ Additional financial burdens include the overall impact to society and lost productivity. While not often referenced in economic impact studies of AF, the condition contributes to increases in missed workdays and short-term disability.⁷

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