Atrial Fibrillation
Prevalence and Scope of the Problem

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KEYWORDS

• Heart • Atrial fibrillation • Prevalence • Dysrhythmia

KEY POINTS

- Stroke is 5 times more common in individuals with atrial fibrillation, and 3 times more common in patients with heart failure, resulting in marked increases in morbidity and mortality.
- The rapidly increasing prevalence of atrial fibrillation is largely attributable to the aging of the population.
- Because atrial fibrillation may be intermittent and asymptomatic or minimally symptomatic at onset, its prevalence is difficult to establish.
- In the past, atrial fibrillation has been classified as intermittent or paroxysmal, persistent or sustained, and long-standing or permanent.
- More recently, implanted loop recorders, pacemakers, and defibrillators have enabled more precise assessment of the heart rhythm over long periods of time.
- The incidence of asymptomatic atrial fibrillation is higher than is perceived by the patients and carries with it an increased risk of stoke even if the atrial fibrillation is asymptomatic and intermittent.

The banal use of atrial fibrillation as a diagnosis in clinical medicine belies the magnitude of its footprint. Atrial fibrillation is a major public health problem in the United States. It is the single most common sustained cardiac dysrhythmia, and a major cause of hospitalization, stroke, disability, and death. The human and economic costs of atrial fibrillation are enormous. The US Centers for Disease Control and Prevention estimates that more than 2.66 million Americans had atrial fibrillation in 2010, and expects that as many as 12 million people will have atrial fibrillation in 2050. This projection is based on the aging population; the increase in chronic cardiovascular and other diseases, including obesity and diabetes; as well as more frequent diagnosis from increased/improved monitoring. Most of the data are derived from longitudinal follow-up of a predominantly white population both from the United States and Europe. This article focuses on the epidemiologic context of the clinical aspects of patients with atrial fibrillation to facilitate a better understanding and care of these patients.

GENDER AND RACE

Men have a 1.5-fold higher risk for developing atrial fibrillation than women after adjustment for age and predisposing conditions. Atrial fibrillation seems to be less common in African Americans,

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even in the setting of heart failure[1] and despite[2] a preponderance of risk factors such as hypertension. The lifetime risk of developing atrial fibrillation is slightly higher in men of European descent (26%) than in women of European descent (23%).[3]

AGE AT DIAGNOSIS

Atrial fibrillation is uncommon before the age of 60 years. The rapidly increasing prevalence of atrial fibrillation is largely attributable to the aging of the population. More than 12% of patients with atrial fibrillation are between 75 and 84 years old, whereas only 1% of patients with atrial fibrillation are less than 60 years old.[4] Age combined with other risk factors is more proarrhythmic.[5,6] More than one-third of patients with atrial fibrillation are older than 80 years (Go), presenting additional management challenges caused by common age-associated comorbidities and frailty.

Body Habitus

A tall stature and obesity are independently associated with an increased incidence of atrial fibrillation. It is thought that this is a direct reflection of left atrial size but, in obesity, diabetes and ventricular diastolic dysfunction are likely contributory.[1] Because the obesity epidemic will contribute to the increased future incidence of atrial fibrillation, targeting obesity may have the opposite effect.

Family History

Although uncommon, genetic susceptibility to atrial fibrillation is supported by parental atrial fibrillation predisposing the offspring by a factor of 2 to 3. These patients with atrial fibrillation are typically young, and the influence of genetic predisposition in the elderly remains unclear at this time.

Habits

An athletic lifestyle, particularly one involving endurance activities, is a risk for atrial fibrillation, especially in young patients (primarily from high vagal tone). Cigarette smoking seems to be significant factor in women and alcohol abuse is also related to the occurrence of atrial fibrillation.[1] All of these are potentially modifiable factors with a likely positive impact.

DIAGNOSIS AND PROGNOSIS

In the past, the diagnosis and classification of atrial fibrillation as paroxysmal, persistent, or permanent has generally relied on symptoms, assessment of the peripheral pulse, 12-lead electrocardiograms, or short external electrocardiographic monitoring. Because atrial fibrillation may be intermittent and asymptomatic or minimally symptomatic, its prevalence is difficult to establish. Implanted loop recorders, pacemakers, and defibrillators have recently enabled detection of subclinical atrial fibrillation by review of longitudinal data.

The incidence of asymptomatic atrial fibrillation is higher than is perceived by patients, and carries with it an increased risk of stoke despite its apparent silence.[7,8] There is an irrational proclivity, despite clear data, to avoid prescribing appropriate anticoagulants in asymptomatic or minimally symptomatic atrial fibrillation.[9] Adherence to prescribed guidelines regarding anticoagulation contributes significantly to stroke reduction.

Stroke is the most severe consequence of atrial fibrillation, and is 5 times more common in individuals with atrial fibrillation.[1] Although most strokes are caused by documented cerebrovascular disease, about 1 in 7 strokes are caused by atrial fibrillation, and subclinical atrial fibrillation is suspected as the cause of 1 in 4 ischemic strokes.[7–10]

An important unanswered question is how long anticoagulation should be maintained after successful ablation of atrial fibrillation. It is generally recommended that anticoagulation be maintained indefinitely in patients with $CHADS^2$ (congestive heart failure [CHF], hypertension, age $\geq$75 years, diabetes mellitus, prior stroke or TIA, or thromboembolism) scores of 2 or greater, regardless of the success of the ablation procedure, and some cardiologists stop anticoagulants after 3 months after successful ablation of atrial fibrillation in patients with $CHADS^2$ scores of 0 to 1.[11]

Atrial fibrillation is also associated with an increased risk of death independent of embolic stroke,[12] in part because of the presence of multiple comorbidities such as heart failure, hypertension, and coronary artery disease, all of which can be life limiting. However, atrial fibrillation independently increases the risk of sudden death from ventricular tachyarrhythmias.[13]

Associated Cardiovascular Disease

Systemic hypertension is the most notable risk factor in the development of atrial fibrillation. CHF, valvular heart disease, and myocardial infarction all increase the likelihood of future atrial fibrillation. The relationship of atrial fibrillation and heart failure (causes or consequence) remains to be determined on a case-by-case basis. CHF is associated with an approximate 5-fold risk of atrial fibrillation. Young patients with more recent onset of atrial fibrillation and uncontrolled rates are typically more likely to have CHF as the consequence.