Diagnostic Evaluation and Follow-Up of Patients with Atrial Fibrillation

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KEYWORDS

• Atrial fibrillation • Diagnostic evaluation • Follow-up • Risk factors • Symptoms • Quality of life

KEY POINTS

- Atrial fibrillation (AF) is the most common clinically encountered cardiac arrhythmia.
- AF carries significant morbidity and mortality.
- As the prevalence of AF continues to increase, so too will the number of both outpatient and inpatient visits that are either directly or indirectly attributable to the condition.
- Clinicians across many specialties will likely face diagnostic and therapeutic challenges associated with AF more frequently in the coming years and decades.

INTRODUCTION

Atrial fibrillation (AF) is the most common clinically encountered cardiac arrhythmia. The estimated number of patients with AF in the United States is estimated to be between 3 and 6 million.[1] The prevalence of AF is highest in the elderly, and it has been estimated that 4 of 5 patients with AF are 65 years of age or older.[2] Over the next 2 to 3 decades, the incidence is expected to increase to 2.6 million, and the prevalence may increase to more than 12 million.[3]

AF carries with it significant morbidity and mortality. It is an important risk factor for ischemic stroke, and as many as 15% of strokes have been attributed to AF.[4,5] It has also been associated with heart failure, decreased functional status, dementia, lower quality of life, and death.[6–11] As the prevalence of AF continues to increase, so too will the number of both outpatient and inpatient visits that are either directly or indirectly attributable to the condition. Therefore, clinicians across many specialties will likely face diagnostic and therapeutic challenges associated with AF more frequently in the coming years and decades.

In this review, the diagnostic evaluation and considerations for follow up after the initial diagnosis of AF are discussed. Signs and symptoms, medical history, and physical examination findings useful when evaluating patients at the bedside are highlighted, and diagnostic approaches in varying clinical scenarios are discussed. Important considerations for both short-term and long-term outpatient follow-up are also reviewed.

DIAGNOSTIC EVALUATION

Clinical History

Symptoms

Most patients with AF report symptoms attributable to AF. There are many symptoms related to AF; however, there is significant interindividual and intraindividual variability. The most common symptoms that prompt patients with previously undiagnosed AF to pursue evaluation include palpitations, dyspnea, chest pain, fatigue, and

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syncope (Fig. 1).[12,13] Palpitations are an unpleasant awareness of the forceful, rapid, or irregular beating of the heart. In a prospective observational study,[12] more than half of patients with AF reported experiencing palpitations. When further subdivided, 79% of patients with paroxysmal and 45% of patients with chronic AF experienced palpitations. The most common precipitating factors were exercise, emotion, postprandial state, and caffeine.

Up to 40% to 50% of patients with AF report dyspnea. The underlying cause of shortness of breath may be difficult to assess, however, because many conditions that cause dyspnea also predispose to AF, like chronic obstructive pulmonary disease (COPD), structural heart disease, and obstructive sleep apnea (OSA).[12,14] Dyspnea related to AF can result in a decline in performance status. The presence of AF, for example, has been shown to be associated with higher New York Heart Association functional class.[15] Furthermore, patients with AF were found to have significantly lower exercise performance compared with similar patients in whom sinus rhythm was restored and maintained.[16]

Chest pain is frequently associated with AF. Fast heart rates, irregular ventricular response, and loss of atrial contraction may lead to a decrease in cardiac output, which contributes to ischemic chest pain in patients with coronary artery disease. Chest pain is seen in patients with AF despite the absence of coronary artery disease, and impaired microvascular flow is a possible explanation.[17,18] Symptoms like lightheadedness and syncope are more likely to be seen in patients with structural heart disease, and although clinically important, they occur less frequently than symptoms described earlier.[19]

Although many patients experience symptoms related to AF, observed frequencies of symptoms may be overestimated, because asymptomatic patients often do not present for evaluation. Several studies have reported that between 10% and 20% of patients with AF are asymptomatic.[12,20–22] One observational study found that patients without symptoms were significantly more likely to be male, carry a diagnosis of diabetes, have a larger left atrial size, have a lower resting heart rate, and have progressed to persistent or permanent AF by the time of AF diagnosis.[22] Furthermore, although $CHADS_2$ and CHA_2DS_2-VASc scores were similar for symptomatic and asymptomatic patients, asymptomatic patients were less likely to be diagnosed with AF and subsequently treated with anticoagulation. An observational study found that 20% of patients with cryptogenic stroke were given a diagnosis of AF during follow-up after wearing a 30-day event monitor.[23]

Quality of life

Quality of life is significantly reduced in most patients with AF.[24,25] Improvements in symptoms and health-related quality of life (HRQOL) are

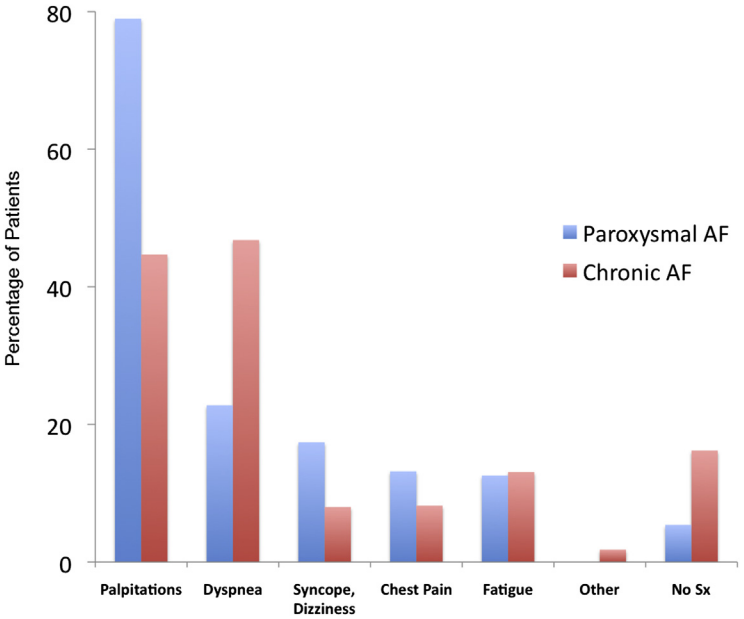

Fig. 1. Frequency of reported symptoms for paroxysmal AF and chronic AF. Sx, symptoms. (*Data from* Levy S, Maarek M, Coumel P, et al. Characterization of different subsets of atrial fibrillation in general practice in France: the ALFA study. The College of French Cardiologists. Circulation 1999;99:3028–35.)