

# Acute Management of Atrial Fibrillation

## From Emergency Department to Cardiac Care Unit

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### KEYWORDS

- Atrial fibrillation • Acute care • Emergency department • Rate control • Rhythm control
- Anticoagulation

### KEY POINTS

- Atrial fibrillation (AF) causing true patient instability (eg, clinically significant hypotension) is very rare: search out and treat other causes (eg, sepsis).
- The decision to implement rate versus rhythm control should be guided by patient symptoms and age.
- Rhythm control with either electricity or medication can be safely provided in the emergency department setting.
- Stroke risk should be assessed using a guidelines-endorsed risk score, and oral anticoagulation with either a direct oral anticoagulant or a vitamin K antagonist should be initiated based on the score, regardless of the discharge rhythm.
- Patients being discharged need to have follow-up care; subsequent AF care can usually be provided on an outpatient basis.

### INTRODUCTION

Atrial fibrillation (AF) is a common arrhythmia and is frequently encountered by clinicians who work in the emergency department and in-hospital settings. Mortality in patients with AF is the highest in the first 4 months following diagnosis.<sup>1</sup> Managing physicians need to be facile in the diagnosis and management of AF in order to decrease the risk of mortality, reduce return emergency

department visits and hospitalizations, and improve patient quality of life.

### Definition


AF is a supraventricular tachyarrhythmia characterized by a rapid, irregular heart rate and ineffective atrial contractions. Atrial activity is chaotic, and atrial rates often exceed 300 beats per minute (bpm) (**Fig. 1**).

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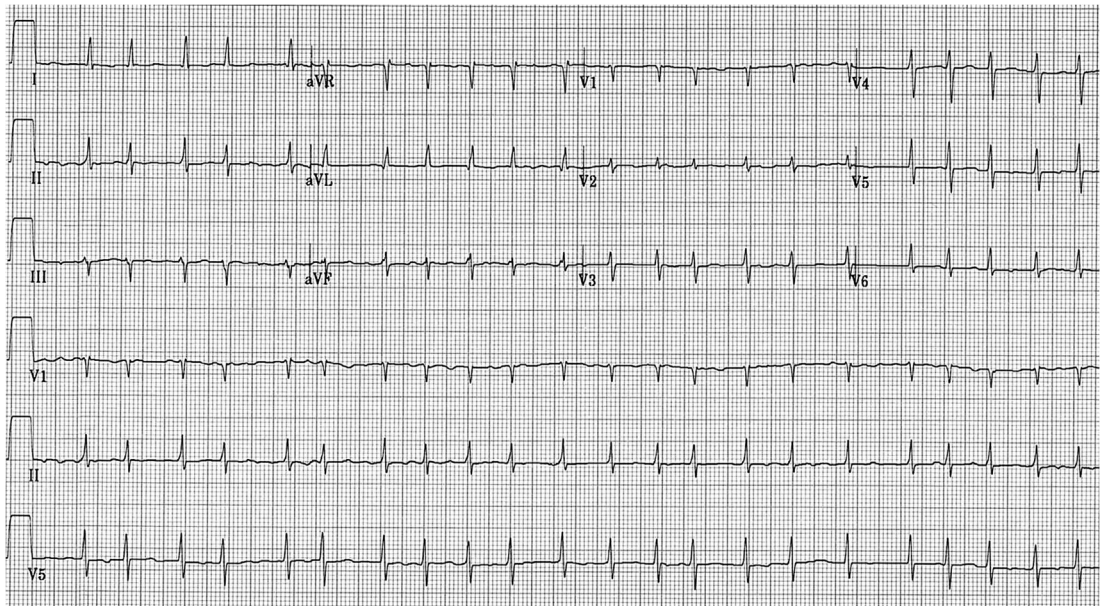


Fig. 1. An electrocardiogram of AF.

### ***Epidemiology and Economic Implications***

Worldwide over 33 million persons have AF,<sup>2</sup> and the prevalence is predicted to increase by 250% by the year 2050.<sup>3,4</sup> The prevalence of atrial flutter is less than one-tenth that of AF, and many of these patients also have AF. The most common cause of AF is hypertension; however, there are a myriad of potential causes (**Box 1**).

The economic cost of AF is huge, with more than \$3.5 billion dollars spent annually on AF care in the United States.<sup>5</sup> In the United Kingdom, 1% of the National Health Service budget goes to AF care.<sup>6</sup>

The largest component of expenditures is hospitalization.<sup>7</sup> Hospitalization rates vary greatly by country and region. In the United States, 69% of AF emergency department visits end in hospitalization, compared with 37% in Canada's largest province.<sup>8</sup> The differences may be caused in part by emergency department cardioversions, after which patients are typically discharged home: US emergency physicians are less likely to perform these relative to their Canadian colleagues.<sup>8,9</sup> However, even within the United States, admission rates vary widely by region,<sup>10</sup> suggesting that other factors, such as access to follow-up care, fear of litigation, patient and family preferences, and local practice patterns, play a role in admission decisions.

### ***Morbidity and Mortality***

AF has been independently associated with increased mortality in both men and women.<sup>2,11</sup>

AF-related deaths are most commonly caused by sudden death, heart failure, and stroke.<sup>12</sup> Strokes caused by AF are usually severe, and are associated with a 50% 1-year mortality.<sup>13</sup>

#### **Box 1 Causes of atrial fibrillation**

- Hypertension
- Obesity
- Valvular heart disease<sup>a</sup>
- Pulmonary embolus
- Postoperative
- Heart failure
- Acute myocardial infarction
- Pericardial disease (pericarditis, myocarditis)
- Hyperthyroidism
- Toxicologic causes
- Sleep apnea
- Chronic obstructive pulmonary disease
- Alcohol: acute (so-called holiday heart) and chronic
- Hypothermia

<sup>a</sup> Valvular heart disease refers to patients with either rheumatic heart disease (predominantly mitral stenosis) or mechanical heart valves; other valvular diseases, such as aortic disease or mitral regurgitation, do not currently have evidence to suggest that they should alter usual decision making around oral anticoagulants.

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