Cardiovascular Conditions in the Observation Unit

Beyond Chest Pain

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KEYWORDS

• Emergency department • Observation unit • Cardiovascular conditions
• Atrial fibrillation • Syncope • Heart failure • Venous thromboembolism

KEY POINTS

- The first emergency department observation units (EDOUs) focused on chest pain and potential acute coronary syndromes.
- Most EDOUs now cover multiple other conditions that lend themselves to protocolized, aggressive diagnostic and therapeutic regimens.
- We discuss 4 cardiovascular conditions that have been successfully deployed in EDOUs around the country.

INTRODUCTION

The first emergency department (ED) observation units (EDOUs) focused on chest pain and potential acute coronary syndromes. However, most EDOUs now cover multiple other conditions that lend themselves to protocolized, aggressive diagnostic and therapeutic regimens. In this article, the authors discuss the management of 4 cardiovascular conditions that have been successfully deployed in EDOUs around the country.

ATRIAL FIBRILLATION

Epidemiology and Disease Burden

Atrial fibrillation (AF) is the most common clinically significant cardiac arrhythmia, affecting more than 2 million people in the United States and more than 46 million people worldwide.[1–3] The incidence of new-onset AF increases with age and is estimated

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Emerg Med Clin N Am 35 (2017) 549–569
http://dx.doi.org/10.1016/j.emc.2017.03.004 **emed.theclinics.com**

to occur in 1% of persons aged 60 to 68 years and in 5% of persons aged 69 years and older.[4]

AF is a significant contributor to the national health care expenditure. Currently, AF accounts for 1% of total ED visits and the rate is increasing.[5] From 1993 to 2004, the number of ED visits for AF increased by 88%; of those patients, approximately 65% were hospitalized.[2,3,6] The rate of hospitalization has increased by 66% over the last 2 decades because of both the growth in the aging population and the increased prevalence of chronic heart disease.[7]

The ever-growing prevalence of AF, hospital overcrowding, and the increasing cost of inpatient admissions have spurred the development of new and innovative management strategies to safely and efficiently care for these patients.[5,8] In the United States, most (70%) patients presenting to the ED with a primary diagnosis of AF are admitted to the hospital.[9] This finding contrasts with the experience in Canada, where studies have demonstrated that 85% of ED patients with AF can be safely discharged home.[1,10] This practice variation has sparked interest in the use of the EDOU for rapid management of patients with AF.[1] Decker and colleagues[4] established that new-onset AF managed in an EDOU, compared with the inpatient setting, can result in a decreased median length of stay (10 hours vs 25 hours) with similar rates of rate and rhythm control. These studies and others have formed the basis for the successful implementation of safe, efficient, and cost-effective EDOU protocols.

PATIENT SELECTION

A successful EDOU protocol for AF relies on an expedited algorithm incorporating anticoagulation, rate and rhythm control, and mechanisms to ensure rapid outpatient follow-up. Managing patients with AF in the EDOU relies on appropriate patient selection. The ideal patients are stable, without cardiac ischemia, and with onset of AF of less than 48 hours duration.[2] The systolic blood pressure (SBP) should be 90 mm Hg or greater and heart rate less than 110 beats per minute (bpm) at the time of disposition to the EDOU, after administration of any required intravenous medications for rate control.[1] Patients with AF secondary to an underlying cause, such as sepsis, pulmonary embolism, gastrointestinal (GI) bleed, or other life-threatening conditions that require hospital admission, are not candidates for EDOU management.[11] Other relative contraindications to placing patients in the EDOU include acute renal insufficiency, pregnant patients, patients with an unknown time of AF onset, and patients with an expected length of stay of greater than 36 hours due to other comorbidities or socioeconomic considerations complicating their care.[6] Additionally, patients who have poor health literacy, lack close follow-up, or who are unable to adhere to their treatment plan are not appropriate EDOU patients because they will require more intensive hospital and case management resources.[2]

PATIENT MANAGEMENT

The management of patients with unstable AF is not appropriate for the EDOU and is not reviewed here. After initial ED evaluation, the next step is to decide whether to control the heart rate or convert patients to a normal sinus rhythm. In patients 65 years of age and older, there is no difference in 5-year outcomes of stroke or death with rate versus rhythm control.[11] Therefore, in this age group, rate control and anticoagulation, if indicated, should generally be the EDOU goal.[12]

Younger patients (aged <65 years) have been shown to benefit from rhythm control and should be considered for cardioversion.[11] The risk factors for immediate stroke following cardioversion include an unknown time from onset, a history of transient