

Atrial Fibrillation in the Clinical Environment at the Beginning of the 21st Century

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A vast amount of knowledge has been accumulated on atrial fibrillation during the last two decades. From among 24,078 publications in 2000 until now, only 452 (0.019%) mention the words “emergency department” (PubMed) and very few describe the approach in an ambulatory cardiology clinic. Only a few publications (less than 100) question the epidemiology of the patients presenting with atrial fibrillation in the emergency department. For this reason the study published by Antoneli and colleagues in this issue of *IMAJ* may add to our understanding of the profile and behavior of patients with this arrhythmia in a clinical environment [1]. Their study describes the clinical presentation of patients with the primary diagnosis of atrial fibrillation in the ambulatory cardiology clinic at a large regional medical center.

Atrial fibrillation is the most common type of arrhythmia, affecting 0.89% of the population in the United States and probably anywhere in the industrialized world [2,3]. In the third world, atrial fibrillation is still frequent because of the high prevalence of rheumatic valvular disease [4]. In the western world the main etiology is hypertension [5].

A patient may be referred to the emergency room either because of a new onset of symptomatic atrial fibrillation persisting for at least 1–2 hours, or one of

the chronic forms, i.e., paroxysmal or persistent. Patients with chronic permanent atrial fibrillation are mainly encountered in the outpatients’ clinic or medicine ward as this is the sole diagnosis, and less in the emergency room. There is a continuous increase in the prevalence of atrial fibrillation, and the number of patients is expected to double by 2050 [3]. Parallel to the increase in frequency of total referrals to the emergency department, the number of patients presenting with atrial fibrillation is also continually increasing [6]. However, in the USA the percentage of patients admitted to hospital with atrial fibrillation was found to be constant during 10 years. This discrepancy suggests that the number of patients with atrial fibrillation treated in the emergency department is also continually increasing. Several reports from different regions in the world describe their treatment policy for patients with atrial fibrillation in the emergency department [7–11].

The approach to these patients in the emergency department is determined by the patient’s clinical condition, duration of the fibrillation episode, previous medical treatment, associated clinical conditions, previous medical history and previous history of atrial fibrillation. If the patient is unstable, accelerated processing and termination of the atrial fibrillation is required. A minimal evaluation is followed by electric cardioversion. If the patient is not on chronic anticoagulation, transesophageal echocardiography may be needed. If the patient is not on anti-arrhythmic treatment there is a high probability of fibrillation recurrence. The third concern in emergency cardioversion is the associated clinical

condition, e.g., acute coronary syndrome, decompensated heart failure, disturbed thyroid function, or acute exacerbation of obstructive lung disease. In all these conditions the success of cardioversion is limited and hospitalization to stabilize the clinical condition must precede the electric shock. The percent of patients in a compromised clinical condition is about 11% [11].

If the patient is stable hemodynamically, the duration of the episode must be determined. The duration for acute cardioversion without previous anticoagulation should not exceed 24–48 hours. Two types of episode may qualify for acute cardioversion: recent-onset first episodes, or episodes with a previous history of atrial fibrillation. Patients with recurrent episodes of atrial fibrillation may or may not be on chronic anticoagulation, depending on the CHADS₂ or CHADS₂-vasc score. If the patient is on anticoagulation he or she may be electrically cardioverted 6 hours after the last oral intake. Medical cardioversion may be performed at any time subject to the patient being suitable.

Patients with longer episodes and without previous anticoagulation are discharged from the emergency department with the recommendation for anticoagulation and future cardioversion. However, the natural history of the atrial fibrillation in these patients is not well described, and publications like that of Antonelli et al. in this issue of *IMAJ* may contribute to our knowledge on this subject [1].

In the clinic, the cardiologist decides upon cardioversion or rate control. Unfortunately, there is no unanimously accepted approach to the decision whether or not to cardiovert. The safety of cardiover-

sion is very high if the patient is appropriately prepared with anticoagulation. Transesophageal echo is not necessary in these patients [12]. Several studies have suggested that the outcome of patients on rate control or rhythm control regime is similar [13-15]. However, the outcome is not similar in patients with sinus rhythm or atrial fibrillation [16]. This means that we still need a safe and effective therapy for rhythm control [17].

The second group of patients presenting to the cardiology clinic are those who were successfully cardioverted in the emergency department or in hospital. The follow-up clinician decides on the length of anticoagulation and intervention if the fibrillation reoccurs.

The third group of patients is referred for further intervention, such as catheter ablation. Since catheter ablation has become a routine treatment for atrial fibrillation, a significant number of patients referred to the cardiology clinic are further referred for an invasive approach.

The study by Antonelli et al. [1] presents a snapshot picture of patients with atrial fibrillation in the cardiology clinic. The outcome of these patients, the length of anticoagulation, the therapeutic approach taken, the decision on rate or rhythm

control, and referral to catheter ablation are not provided in their article and future large clinical studies are needed.

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References

- Antonelli D, Peres D, Turgeman Y. Atrial fibrillation in ambulatory cardiology clinics. *IMAJ Isr Med Assoc J* 2012; 14: 290-3.
- Feinberg WM, Blackshear JL, Laupacis A, Kronmal R, Hart RG. Prevalence, age distribution, and gender of patients with atrial fibrillation. *Arch Intern Med* 1995; 155: 469-73.
- Go AS, Hylek EM, Phillips KA, et al. Prevalence of diagnosed atrial fibrillation in adults. National implications for rhythm management and stroke prevention: the AnTicoagulation and Risk Factors in Atrial Fibrillation (ATRIA) study. *JAMA* 2001; 285: 2370-5.
- Seckler M, Hoke TR. The worldwide epidemiology of acute rheumatic fever and rheumatic heart disease. *Clin Epidemiol* 2011; 3: 67-84.
- Furberg CD, Psaty BM, Manolio TA, Gardin JM, Smith VE, Rautaharju PM, for the Collaborative Research Group. Prevalence of atrial fibrillation in elderly subjects (the Cardiovascular Health Study). *Am J Cardiol* 1994; 74: 236-41.
- McDonald AJ, Pelletier AJ, Ellinor PT, Camargo CA. Increasing US emergency department visit rates and subsequent hospital admission for atrial fibrillation from 1993 to 2004. *Ann Emerg Med* 2008; 51: 58-65.
- Stiell IA, Clement CM, Brison RJ, et al. Variations in management of recent-onset atrial fibrillation and atrial flutter among academic hospital emergency departments. *Ann Emerg Med* 2011; 57: 13-21.
- Arendts G, Krishnaraj M, Paull G, Rees D. Management of atrial fibrillation in acute setting. Findings from an Australasian Survey. *Heart Lung Circ* 2010; 19: 423-7.
- Decker WW, Smars PA, Valdyanathan L, et al. A prospective randomized trial of an emergency department observation unit for acute onset atrial fibrillation. *Ann Emerg Med* 2008; 52: 322-8.
- Deasy C. Emergency department protocolised management of acute atrial fibrillation: How many patients in a tertiary hospital are eligible? *Ir Med J* 2006; 99: 272-3.
- del Arco C, Martin A, Laguna P, Gargantilla P, on behalf of the investigators in the Spanish atrial fibrillation in emergency medicine study group (GEFAUR). *Ann Emerg Med* 2005; 46: 424-30.
- Nagarakanti R, Ezekowitz MD, Oldgren Y, et al. Dabigatran versus warfarin in patients with atrial fibrillation: an analysis of patients undergoing cardioversion. *Circulation* 2011; 123: 131-6.
- Wyse DG, Waldo AL, DiMarco JP, et al. A comparison of rate control and rhythm control in patients with atrial fibrillation. *N Engl J Med* 2002; 347: 1825-33.
- van Gelder IC, Hagens VE, Bosker HA, et al. A comparison of rate control and rhythm control in patients with recurrent persistent atrial fibrillation. *N Engl J Med* 2002; 347: 1834-40.
- Roy D, Talajic M, Nattel S, et al. Rhythm control versus rate control for atrial fibrillation and heart failure. *N Engl J Med* 2008; 358: 2667-77.
- Benjamin EJ, Wolf PA, D'Agostino RB, Silbershatz H, Kannel B, Levy D. Impact of atrial fibrillation on the risk of death: the Framingham Heart Study. *Circulation* 1998; 98: 946-53.
- Reiffel JA. Atrial fibrillation: what have recent trials taught us regarding pharmacologic management of rate and rhythm control? *Pacing Clin Electrophysiol* 2011; 34: 247-59.