

EDITORIAL

Rapid atrial fibrillation, rapid cardioversion, rapid return home

Fibrilación auricular rápida, cardioversión rápida, regreso a casa rápido

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It remains controversial whether atrial fibrillation (AF) is best treated with rate control rather than rhythm control. The message from the Atrial Fibrillation Follow-up Investigation of Rhythm Management¹ trial that rate control is not inferior to rhythm control has been challenged and subsequent studies have demonstrated the safety and efficacy of a first approach to rhythm. However, practice varies widely and the algorithm for emergency department management of acute onset AF encompasses a range of strategies including a wait and see approach (as most patients spontaneously convert to sinus rhythm within 48 hours), early versus delayed cardioversion, pharmacologic versus electrical cardioversion, or admission for rate control or transesophageal echocardiography followed by in-hospital cardioversion^{2,3}. The arguments for rhythm control and discharge home are pragmatic and patient centric including symptom control, avoiding hospitalization and decreasing time spent in atrial fibrillation⁴. However, the main concern is the safety of this approach, predominantly the risk of stroke⁵.

In this issue of *Emergencias*, the Hospital Emergency Department Management Strategies of Atrial Fibrillation group⁶ adds to our knowledge. Simon et al. report a robust multi-center prospective observational short term study evaluating the efficacy of a rhythm first method for recent onset AF⁵. A total of 337 consecutive patients were recorded in 124 EDs throughout Spain that were admitted the ED with AF less than 48 hours duration. The primary endpoint was conversion to sinus rhythm, which occurred in 82% of their cohort. The secondary endpoints included ED length of stay patient symptoms upon discharge and safety as defined by ED adverse events. A first electrical approach was performed in 26 patients with the remaining 311 (92%) receiving initial pharmacologic management. The choice of pharmacologic agent was delegated to the caregiver, but was either amiodarone, flecainide or propafenone. There were 26 patients that failed an initial pharmacological approach and were treated with electrical cardioversion.

This is the first study of its kind in this region. The data both adds to our growing knowledge base regar-

ding on the management of atrial fibrillation in the emergency department, and stimulates thoughts about new questions to answer. The choice of initial pharmacologic agent, which was not protocol driven, was different from other multi-center trials. This may depend on geographical region and patient co-morbidities, with options including procainamide, flecainide, propafenone, ibutilide, amiodarone and vernakalant^{5,7}. In this study, amiodarone was the preferred agent, used in 194 of 311 patients (62%). Despite the clinicians preferred use of amiodarone, patients treated with it were less likely to have sinus rhythm at discharge (odds ratio, 0.442) and were more likely to stay 24 hours or longer (odds ratio, 2.7). This study thus highlights the inconsistency between clinical practice and guidelines in the study region. The guidelines recommend that amiodarone be restricted to patients with structural heart disease because of the delayed onset of action.

Other regions take different approaches. Vernakalant is approved in Canada and has not been widely used outside of Canada. Stiell, et al, in the Ottawa Aggressive Protocol⁸ found that procainamide was associated with 58% initial conversion rate, and had fewer adverse events than amiodarone. However, since publication of the Ottawa Aggressive Protocol, the authors have moved toward an electricity first option, resulting in improved efficacy while retaining a very low adverse event rate⁹.

The HERMES-AF report in this journal did not address adverse events following ED discharge. HERMES-AF did not risk stratify based on CHADS2 score and did not comment on compliance with anti-coagulation upon discharge, as recommended by the AHA/ACC/HRS/ESC guidelines. Thus, the safety of their inclusive approach cannot be evaluated^{10,11}. While other studies did not risk stratify beforehand either, nor did they begin oral anti-coagulation in the ED, they did look at longer term safety to support a rhythm control method¹². Guidelines support the use of anticoagulation for at least 4 weeks if sinus rhythm is restored since many patients will not get cardiology follow up within this frame¹³. Telemedicine use may increase anticoagulation compliance and adherence to the guidelines¹⁴.

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As more and more countries adopt a rhythm control first approach for patients with rapid atrial fibrillation, specific guidelines addressing the timing³, choice of pharmacologic agent versus electricity first, appropriate patient selection, and initiation of oral anticoagulation should be standardized¹⁵. Future guidelines for the management of acute atrial fibrillation include the addition of wearable technology for detection of atrial fibrillation coupled with the use of telemedicine as a means to enhance anticoagulation compliance. The increasing use of smartphones and wearable technology that allow patients to “self-diagnose” atrial fibrillation may be helpful. While the data support the use of a rhythm control method in a select, low risk group of patients who show up to the ED within 48 hours of onset of AF, there are studies that challenge the reliability of self-recognition of atrial fibrillation. According to studies with implantable loop recorders or long term cardiac monitors, patients do not know when they are actually in atrial fibrillation, implying it would be difficult to know if their atrial fibrillation is “recent onset” or within 48 hours¹⁶. However, the group of acutely symptomatic patients presenting for symptom relief may represent a self-selected cohort of younger, otherwise healthy patients, better able to distinguish onset of atrial fibrillation. Wearable technology and smart phone apps that can detect atrial fibrillation support this idea¹⁷. Despite concerns that “recent onset” AF may be an inaccurate label, the patients included in this and other trials demonstrate that those treated with a rhythm first approach do well. They have restoration of sinus rhythm in ED, avoid hospitalization, and do not have any increased risk of short or longer-term adverse events. This study adds further evidence that taking a patient centered approach to the management of atrial fibrillation facilitates prompt restoration of sinus rhythm and rapid discharge home with return to normal activities.

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References

- Wyse DG, Waldo AL, DiMarco JP, Domanski MJ, Rosenberg Y, Schron EB, et al. A comparison of rate control and rhythm control in patients with atrial fibrillation. *N Engl J Med*. 2002;347:1825-33.
- Vinson DR, Hoehn T, Graber DJ, Williams TM. Managing emergency department patients with recent onset atrial fibrillation. *J Emerg Med*. 2012;42:139-48.
- Pluymaekers N, Dudink E, Luermans J, Meeder JG, Lenderink T, Widdershoven J, et al. Early or delayed cardioversion in recent-onset atrial fibrillation. *N Engl J Med*. 2019;380:1499-508.
- Taylor DM, Aggerwall A, Carter M. Management of new onset atrial fibrillation in previously well patients less than 60 years of age. *Emerg Med Australas*. 2005;17:4-10.
- Andrade JG, Verma A, Mitchell LB, Parkash R, Leblanc K, Atzema C, et al. 2018 focused update of the Canadian Cardiovascular Society guidelines for the management of atrial fibrillation. *Can J Cardiol*. 2018;34:1371-92.
- Martín A, Coll-Vinent B, Suero C, Fernández-Simón A, Sánchez J, Varona M, et al. Benefits of rhythm control and rate control in recent-onset atrial fibrillation: the HERMES-AF study. *Acad Emerg Med*. 2019 (en prensa).
- Del Arco Galán C. [Drugs, permanent atrial fibrillation, and secondary problems] Spanish. *Emergencias*. 2016;28:71-2.
- Stiell IG, Clement CM, Perry JJ. Association of the Ottawa aggressive protocol with rapid discharge of emergency department patients with recent onset atrial fibrillation or flutter. *CJEM*. 2010;12:181-91.
- Stiell IG, Healey JS, Cairns JA. Safety of urgent cardioversion for patients with recent-onset atrial fibrillation and flutter. *Can J Cardiol*. 2015;31:239-41.
- Gorennek B, Pelliccia A, Benjamin EJ, Boriani G, Crijns HJ, Fogel RI, et al. European Heart Rhythm Association (EHRA)/European Association of Cardiovascular Prevention and Rehabilitation (EACPR) position paper on how to prevent atrial fibrillation endorsed by the Heart Rhythm Society (HRS) and Asia Pacific Heart Rhythm Society (APHRS). *Europace*. 2017;19:190-225.
- Stiell I, Macle L; CCS Atrial Fibrillation Guidelines Committee. Canadian Cardiovascular Society atrial fibrillation guidelines 2010: management of recent-onset atrial fibrillation and flutter in the emergency department. *Can J Cardiol*. 2011;27:38-46.
- Stiell IG, Clement CM, Rowe BH, Brison RJ, Wyse DG, Bimie D, et al. Outcomes for emergency department patients with recent-onset atrial fibrillation and flutter treated in canadian hospitals. *Ann Emerg Med*. 2017;69:562-71.e2.
- Rodríguez Aguado O, Domínguez-Manzano N, Novalbos-Ruiz JP. [Adherence to clinical practice guidelines in prehospital care of atrial fibrillation: the experience of emergency paramedic teams] Spanish. *Emergencias*. 2015;27:347-8.
- Lee M, Wang M, Liu J, Holbrook A. Do telehealth interventions improve oral anticoagulation management? A systematic review and meta-analysis. *J Thromb Thrombolysis*. 2018;45:325-36.
- Baugh CW, Clark CL, Wilson JW, Stiell IG, Kocheril AG, Luck KK, et al. Creation and implementation of an outpatient pathway for atrial fibrillation in the emergency department setting: results of an expert panel. *Acad Emerg Med*. 2018;25:1065-75.
- Ballard DW, Reed ME, Singh N, Rauchwerger AS, Hamity CA, Warton EM, et al. Emergency department management of atrial fibrillation and flutter and patient quality of life at one month postvisit. *Ann Emerg Med*. 2015;66:646-54.e2.
- Li KHC, White FA, Tipoe T, Liu T, Wong MC, Jesuthasan A, et al. The current state of mobile phone apps for monitoring heart rate, heart rate variability, and atrial fibrillation: narrative review. *JMIR Mhealth Uhealth*. 2019;7:e11606.