Improving an Outpatient Pathway for the Emergency Management of Atrial Fibrillation and Flutter

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To the Editor:

We commend Baugh et al.[1] for their treatment pathway for the emergency department (ED) management of atrial fibrillation (AF) and flutter (AFL; combined AFF). This will help clinicians facing bedside management decisions. It will also provide a model for ED leaders and key stakeholders creating a multidisciplinary comprehensive emergency care pathway for their own medical centers. Three issues on pharmacologic cardioversion, however, warrant clarification.

First, the authors recommend pharmacologic cardioversion "for patients who are poor sedation candidates secondary to patient or department resource factors."[1] The indications for pharmacologic cardioversion are broader when physician and patient preferences are considered. Some patients, despite reassurances, are hesitant to undergo procedural sedation with electrical cardioversion and would rather receive a pharmacologic trial. Also, many physicians favor the convenience of ordering a medication that may obviate the need for procedural sedation.

Second, the authors should consider prolonging their recommended "effect period" of ibutilide. Prospective studies uniformly provide a minimum of 60 minutes following the completion of ibutilide infusion to allow the medication to work before considering electrical cardioversion (that is, 90 minutes from initiation if using standard 30-minute dosing: 10-minute infusion, 10-minute interval, 10-minute infusion).[2] To routinely hasten to electrical cardioversion can short-circuit ibutilide's opportunity for success by prematurely deeming it ineffective.

The authors make this recommendation: "Ibutilide 1mg IV over 10 min; may repeat same dose 10 min after first infusion if still in [AFF]; if still in [AFF] at 30 minutes consider electrical cardioversion."[1] It may be unclear from their wording when the 30-minute clock begins. If we allow it to start at the completion of the last infusion, it is still short by 30 minutes.

The conventional timeline from ibutilide initiation through the full 60-minute postinfusion effect period is also concordant with the recent-onset AFF literature. Mean time from drug initiation to sinus restoration varies considerably: from 19 (±9) minutes in one small prospective study with a 90-minute endpoint[3] to 28 (±16) minutes for AFL and 53 (±25) minutes for AF in a larger trial with a 4.5-hour endpoint.[4] Constricting the standard timeline may encourage unnecessary procedural sedation and electrical cardioversion, without reducing overall length of stay, which requires a minimum 4-hour monitoring period.[2]

Our third suggestion expands the prophylactic $MgSO_4$ dosing range beyond 2 g. Their reasoning for adjunct $MgSO_4$ is not explained, but it can serve two roles: at moderate doses, it enhances the effectiveness of ibutilide and, at higher doses (10 g over 3 hours), it may also reduce the incidence of polymorphic ventricular tachycardia.[2] Until better dose-ranging studies are published, the limited evidence suggests that $MgSO_4$ dose matters: 1 g has no measurable impact, whereas doses from 2 to 4 g seem to have escalating effects on the rate of ibutilide-induced cardioversion.[5] Since moderate-dose $MgSO_4$ has a good safety profile and is well tolerated, it might be wise to recommend either a higher dose (e.g., 4 g) or suggest a range like 2 to 4 g, explaining that higher doses may better augment ibutilide's effectiveness.[2] These slight modifications could make the author's clinical pathway even more helpful.

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References

1. Baugh CW, Clark CL, Wilson JW, 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.
2. Vinson DR, Lugovskaya N, Warton EM, et al. Ibutilide effectiveness and safety in the cardioversion of atrial fibrillation and flutter in the community emergency department. Ann Emerg Med 2018;71:96–108.e2.
3. Mountantonakis SE, Moutzouris DA, Tiu RV, Papaioannou GN, McPherson CA. Ibutilide to expedite ED therapy for recent-onset atrial fibrillation flutter. Am J Emerg Med 2006;24:407–12.
4. Kafkas NV, Patsilinakos SP, Mertzanos GA, et al. Conversion efficacy of intravenous ibutilide compared with intravenous amiodarone in patients with recent-onset atrial fibrillation and atrial flutter. Int J Cardiol 2007;118:321–5.
5. Wang A. Efficacy of class III antiarrhythmics and magnesium combination therapy for atrial fibrillation. Pharm Pract (Granada) 2012;10:65–71.