

To the Editor:

I read with great interest, “ECG Predictors of Cardiac Arrhythmias in Older Adults With Syncope”, by Nishijima et al.¹ This was a large, well-designed prospective study that demonstrated that 3% of adult patients 60 years or older who present to the ED with syncope or near syncope may later incur a serious dysrhythmia that may not be apparent during initial ED evaluation. The primary outcome of serious dysrhythmia was appropriately defined according to current AHA guidelines² and included symptomatic supraventricular tachycardia (SVT), the most common primary outcome observed in this study (42 subjects, 40%).

Supraventricular tachycardia broadly includes all dysrhythmias that originate from the atria or AV node, proximal to the bundle of His – AV nodal reentrant tachycardia (AVNRT), atrial tachycardia, atrial fibrillation or flutter (AF), multifocal atrial tachycardia, junctional tachycardia, and accessory pathway-mediated reentrant tachycardia. The proportion of patients with these specific, individual SVTs was not explicitly reported in Nishijima et al.¹ This point is relevant, because the individual SVTs may not be equal with regards to “seriousness”, or perhaps more specifically, the need for early diagnosis and treatment. For example, AF may need immediate attention in the ED for rhythm/rate control and anticoagulation, but paroxysmal AVNRT may be terminated with patient-initiated valsalva maneuvers or suppressed with AV nodal agents as an outpatient prior to definitive radiofrequency ablation.

Although technically a category, “SVT” often refers to paroxysmal AVNRT only. If Nishijima et al¹ similarly equate SVT with AVNRT, then I question the study’s classification of SVT (and AVNRT) as a “serious” dysrhythmia. First, although AVNRT often prompts troponin testing, it does not appear to be related to myocardial infarction unless suggestive symptoms persist after dysrhythmia termination.³ Second, although AVNRT in elderly patients may limit activity and occasionally result in near-syncope or syncope, the ventricular rate of AVNRT is slower in this age group,⁴ and the initial drop in blood pressure is transient.⁵ Third, AVNRT is often diagnosed at a young age, and onset after 60 years of age is uncommon.⁶ Therefore, I wonder

¹ Nishijima DK, Lin AL, Weiss RE, et al. ECG Predictors of Cardiac Arrhythmias in Older Adults With Syncope. *Ann Emerg Med* 2017.

² Shen WK, Sheldon RS, Benditt DG, et al. 2017 ACC/AHA/HRS Guideline for the Evaluation and Management of Patients With Syncope: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Rhythm Society. *Circulation* 2017;136:e60-e122.

³ Carlberg DJ, Tsuchitani S, Barlotta KS, Brady WJ. Serum troponin testing in patients with paroxysmal supraventricular tachycardia: outcome after ED care. *Am J Emerg Med* 2011;29:545-8.

⁴ Haghjoo M, Arya A, Heidari A, Fazelifar AF, Sadr-Ameli MA. Electrophysiologic characteristics and results of radiofrequency catheter ablation in elderly patients with atrioventricular nodal reentrant tachycardia. *J Electrocardiol* 2007;40:208-13.

⁵ Razavi M, Luria DM, Jahangir A, Hodge DO, Low PA, Shen WK. Acute blood pressure changes after the onset of atrioventricular nodal reentrant tachycardia: a time-course analysis. *J Cardiovasc Electrophysiol* 2005;16:1037-40.

⁶ Porter MJ, Morton JB, Denman R, et al. Influence of age and gender on the mechanism of supraventricular tachycardia. *Heart Rhythm* 2004;1:393-6.

how many of the 42 subjects who met the primary outcome of SVT had already been diagnosed with AVNRT prior to their index ED visit and had a treatment plan in place. What would be the utility of finding *recurrent* SVT during the follow-up period in these patients?

If we reconsider the classification of SVT as a serious dysrhythmia and remove the 42 patients with SVT from the primary outcome, then the 30-day risk of serious dysrhythmia in this elderly patient population, regardless of ECG result, would be 62 out of 3,613 subjects or 1.7% (95% CI 1.3% to 2.2%). In patients with a *normal* ECG, this proportion figures to be even smaller. This suggests that even in elderly patients with syncope or near syncope - after important non-cardiac etiologies such as occult sepsis, pulmonary embolism, and gastrointestinal bleeding are considered - a normal ECG may sufficiently reduce the 30-day risk of serious dysrhythmia (excluding AVNRT) to allow safe discharge from the ED without further testing.

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