We don't know what we need to know about atrial fibrillation

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Received for publication Dec 19, 2017; accepted for publication Dec 20, 2017; available ahead of print Feb 2, 2018.

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J Thorac Cardiovasc Surg 2018;155:1522-3

0022-5223/\$36.00

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<https://doi.org/10.1016/j.jtcvs.2017.12.100>

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Central Message

This meta-analysis confirms prior reports associating AF with worse outcomes in patients undergoing CAB. Questions remain about the impact on clinical outcomes of treating AF.

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Atrial fibrillation (AF) is encountered in older patients and sometimes preoperatively in patients undergoing coronary artery bypass (CAB). Prior single-center studies, Society of Thoracic Surgeons database studies, and a Cochrane review indicate that AF is associated with increased risk for these patients.¹⁻³ The meta-analysis from Saxena and colleagues⁴ confirms these prior reports and notes an association of preoperative AF with higher stroke, renal failure, reoperation for bleeding, prolonged ventilation, and higher early and late mortality. Unique to this analysis was an attempt to determine whether off-pump CAB mitigates those risks, and with the limited data available, it appears not. They conclude that there is “a need to evaluate the role of adjunctive ablative strategies.”⁴

We know from randomized trials that surgical concomitant AF ablation (SAF) reduces late AF when compared with control patients (untreated AF), although the majority of these studies are in patients undergoing mitral surgery, not CAB.² The frequency of AF is higher in patients undergoing mitral surgery; therefore, trial enrollment is more practical than a CAB trial. Single-center and Society of Thoracic Surgeons database studies indicate that SAF can be performed safely and may even reduce perioperative risks compared with patients with untreated AF.^{5,6} On the basis of available data, the Society of Thoracic Surgeons and Heart Rhythm Society in 2017 made it a Class 1 recommendation to ablate preoperative AF at the time of CAB (and mitral and aortic valve surgery),⁷ but in general the surgical community has not.^{7,8} Data indicate that SAF is performed in only 33% of patients undergoing CAB.⁵

What we don't know is critical. If we extend SAF to the 67% of patients currently untreated, will we increase their risk? Good surgeons may have used good judgment not to treat all patients. We can't easily dissect that decision out using registries, propensity-matched studies, and meta-analyses. Surgical randomized trials generally exclude a large percentage of potential candidates from enrollment. What is the right treatment to add? Because stroke is the most dreaded and lethal AF complication, should the

treatment be focused on the left atrial appendage, and if so, excise, clip, oversew, or other?⁹ If SAF, which lesion set? Is the best approach pulmonary vein isolation with clamps, open the left atrium for a box pulmonary vein lesion with ablation to the mitral isthmus, or open both atria for a more complete ablation?¹⁰ Which technology: cryoablation alone or with bipolar radiofrequency clamps? Patients treated with SAF will have less AF, so their electrocardiogram will look better, but will that translate into longer lives, less strokes, a better quality of life, reduced rehospitalizations, and less cost of care over time? Are there subgroups in whom the risk/benefit calculation varies? Perhaps young patients with symptomatic AF derive benefit at low risk, but elderly patients with comorbidities do not? No surprise in the meta-analysis that patients with AF don't do as well as those without preoperative AF, but there are no answers to the questions that count. The field of SAF ablation has to focus on those questions now, but the answers will be hard to find.

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