Do we need yet another way to classify atrial fibrillation?

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In this issue, the *Journal* presents an important study by Filardo and colleagues¹ examining postoperative atrial fibrillation (POAF) after isolated coronary artery bypass grafting. Two assertions are made in this article: (1) the Society for Thoracic Surgeons (STS) cardiac database misses nearly 10,000 patients with POAF annually; and (2) these missed patients carry an unrecognized significant increase in 30-day mortality. Determining whether these conclusions can be drawn from their data requires parsing the complexities of defining and studying POAF.

In their study, Filardo and colleagues¹ define atrial fibrillation (AF) as “any episode via continuous monitoring and documented by physician in a chart.” This differs not only from the STS definition as AF “requiring treatment” but also from the Heart Rhythm Society definition of “any arrhythmia that has the ECG characteristics of AF and lasts sufficiently long for a 12-lead ECG to be recorded, or at least 30 seconds on a rhythm strip.”² Two questions arise: (1) What is the goal of creating this third definition? (2) Are there actionable findings based on this third definition? Filardo and colleagues¹ suggest that there is a rationale for this redefinition, as suggested by their findings of an associated increase in 30-day mortality when comparing patients with untreated POAF with those with treated POAF. The clinical reasons underlying the absence of POAF treatment, however, which may also have an impact on mortality, were not further explored in the study. This makes it quite difficult to determine the significance of this new definition.

Because the study population came from highly esteemed, high-quality heart programs, simple neglect to treat POAF can reasonably be discarded, leaving 3 other plausible scenarios: (1) AF that self-terminated before treatment; (2) AF that, without treatment, was slow or rate controlled; or (3) patient contraindications to POAF treatment. As Gillinov and associates³ have shown, short-term mortality is similar between rate and rhythm control strategies; the second group thus should not explain the increased 30-day mortality. The third group may be the key to putting untreated POAF into context. Although Filardo and colleagues¹ adjusted for STS predicted risk of operative mortality, they did not indicate whether baseline characteristic

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Central Message

“It has long been an axiom of mine that the little things are infinitely the most important.”—Sir Arthur Conan Doyle (said by Sherlock Holmes in “A Case of Identity,” 1891).

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differences across groups were significant. In reviewing the data, there are several noticeable differences: patients with untreated POAF had higher rates of myocardial infarction within 24 hours, congestive heart failure, previous coronary artery bypass grafting, and preoperative intra-aortic balloon pump support (Table 1). It is possible that this constellation of preoperative characteristics may have resulted in postoperative states such as multiple organ failure, hemodynamic status, or other clinical scenario contraindicating AF treatment. Thus lack of treatment of POAF may simply be a proxy for other postoperative complications that are associated with higher 30-day mortality risk and that are not captured by the STS predicted risk of operative mortality. If this is the case, the focus should then be less on treatment versus lack of treatment of POAF and more on the underlying factors for lack of treatment.

There are also peripheral issues of defining “treatment.” As the authors of the Contemporary Analysis of Perioperative Cardiovascular Surgical-Care AF registry study noted, one limitation in studying POAF is that “postoperative medical therapy cannot be specifically attributed to POAF, versus other indications (eg, β -blockers for CAD vs POAF).”⁴ The definition of Filardo and colleagues¹ also relies on physician documentation. These subtleties may explain the interinstitutional variation found by Filardo and colleagues,¹ and it would remain an issue even if the STS definition of AF were adjusted to what they have proposed.

In the 1970s, we classified AF as intermittent and continuous. In 2006, we changed the definition to include,

TABLE 1. Selected variables from the study of Filardo and colleagues¹

Characteristic	POAF		No POAF
	AF not in STS data (untreated AF)	AF in STS data (treated AF)	
Myocardial infarction <24 h before CABG	5.2	3.1	2.9
Congestive heart failure	30.4	26	21.9
Previous CABG	6.6	4.5	4.6
Preoperative intra-aortic balloon pump	18.8	15.5	10.7

POAF, Postoperative atrial fibrillation; AF, atrial fibrillation; STS, Society of Thoracic Surgeons; CABG, coronary artery bypass grafting.

paroxysmal, persistent, and permanent,⁵ then added long-standing persistent in 2014.⁶ We now have an STS definition, as well as a Heart Rhythm Society definition that differs. This relatively small series does not provide enough evidence to justify the addition of yet another definition.

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