Is new-onset postoperative atrial fibrillation a benign complication?

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Central Message

New-onset atrial fibrillation is common after open heart surgery but may have no significant impact on early and late survival if sinus rhythm is restored early after the onset of the arrhythmia.

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New-onset atrial fibrillation (AF), that is, AF occurring in patients without a history of AF, is most common in the hospital setting after cardiac surgery in general and valve surgery in particular. The incidence after valve surgery has been described to be as high as 50%. AF occurs more frequently in older patients and in those with mitral valve disease, but it also occurs in young patients and after aortic valve surgery and coronary revascularization.^{1,2} Previous history of AF, older age, hypertension, left ventricular hypertrophy, and congestive heart failure, as well as prolonged aortic crossclamp and pump perfusion times, have often been associated to the occurrence of postoperative (within the same hospital admission) AF after cardiac surgery. As judged from the literature, the type of surgery (aortic vs mitral vs coronary) is probably also a risk factor.^{3,4} In this respect, it is important to stress that the incidence of new-onset AF is much lower after transcatheter aortic valve implantation than after surgical aortic valve replacement (AVR),^{2,4,5} which may implicate cardiopulmonary bypass and cardioplegia as triggering factors.

This complication is said to effect early and late patient survival, independently of the treatment,^{6,7} and several protocols for prophylaxis against this arrhythmia have been proposed but are not consistently applied by a large number, perhaps the majority, of surgical units. The adverse effect on long-term survival may not be related to the short-lived new-onset AF but rather to the underlying pathology associated to the arrhythmia, especially pathology that affects the myocardium, principally in atherosclerotic coronary artery disease.

It is not survival alone, however, that should be cause for concern; AF, even in episodes of limited duration, may result in transient ischemic attacks, ischemic or hemorrhagic strokes, and peripheral thromboembolism, which is why affected patients should immediately be anticoagulated.^{8,9}

In an article in this issue of the *Journal*, Swinkels and colleagues¹⁰ from The Netherlands analyze the effect on long-term survival (as late as 20 years; mean of 18 years)

of new-onset postoperative AF after aortic valve replacement, which occurred in 42.4% of their patients. Swinkels and colleagues¹⁰ conclude that “new-onset postoperative AF after AVR does not affect long-term survival when treatment is aimed to restore sinus rhythm before discharge home.” Their consequent message is that patients who have new-onset AF after cardiac surgery should not leave the hospital before correction of the arrhythmia and restoration of sinus rhythm, within 24 to 48 hours from onset, by medication and when medication fails by direct-current cardioversion, which is now (but was not then) recommended by the guidelines.

I believe this to be, by far, the longest follow-up of a series of patients with new-onset postoperative AF after cardiac surgery, and also a series in which a definitive and rigid protocol of early treatment of the AF was in practice, which may have made all the difference. This study is at odds with previously published studies, however, with opposite conclusions. Filardo and coworkers⁶ reported that new-onset post-AVR AF is significantly associated with increased long-term risk of mortality independent of the preoperative severity of disease. They found that the risk of long-term mortality in patients who had new-onset post-AVR AF was 48% higher than that in patients without it. Levy and colleagues⁷ also found that “post-operative AF incidence

in aortic valve replacement is high and correlates with age in patients aged 70 years and older and significantly more pronounced in patients aged 80 years.” In their experience, the intensive care unit and hospital stays were longer, but there was no increase in mortality or stroke.

Swinkels and colleagues¹⁰ believe that one of the reasons for the discrepancy was the homogeneous character of their series, composed as it was almost entirely of patients who had isolated AVR, especially because the previously mentioned risk factors were not more prevalent in their new-onset AF group. They also consider their long follow-up, almost double those reported by others, to be a possible factor in the results, although it is highly unlikely that the effect of 1 or a few short-lived early episodes could have an impact on survival beyond the first decade after surgery.

Another important aspect to consider is that the antiarrhythmic drugs used prophylactically or therapeutically at the time of treatment of this patient cohort (1990-94) are no longer used or have been replaced by new and more efficacious pharmacologic agents.⁹

In conclusion, this contribution from Swinkels and colleagues¹⁰ reassures us that new-onset AF, common after heart surgery, may have no significant impact on early and late survival if sinus rhythm is effectively and permanently restored early after the onset of the arrhythmia and before the patient’s discharge from the hospital.

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