To the Editor:
I read with great interest the article entitled “Association Between Renal Function, Diastolic Dysfunction, and Postoperative Atrial Fibrillation Following Cardiac Surgery” by Chua et al1 in a recent issue of the Circulation Journal. Those authors prospectively investigated the relationships between renal dysfunction, diastolic dysfunction, and postoperative atrial fibrillation (POAF) following cardiac surgery and concluded that in patients undergoing cardiac surgery, a decreased estimated glomerular filtration rate was associated with an increased rate of left ventricular diastolic dysfunction and a subsequent increase in the rate of POAF. I have some comments about this study.

Although there is not any consensus or precise definition of POAF, in the study in question1 it was defined as any documentation of sustained AF episodes lasting >30 s recorded on continuous telemetry throughout hospitalization or on ECG outside of the hospital setting within 30 days following cardiac surgery. However, this definition can introduce an information bias. Patients with a longer hospital stay have a longer monitoring time, leading to a higher probability of detection of an episode of AF than patients discharged within the normal time. This information bias could be corrected by definition of POAF as AF occurring during a specific period of time in which all patients can be observed.

The prevalence of AF varies from 30% after isolated coronary artery bypass graft (CABG) to 40% after valve surgery and 50% after combined CABG and valve surgery. POAF usually occurs between days 2 and 4 after surgery, with a peak incidence in the second day.2 Also, POAF is usually self-terminating and in the most of patients sinus rhythm resumes at 6–8 weeks after surgery.3 The study by Chua et al1 included a high number of patients undergoing surgery for coronary artery disease and the authors did not explain why they excluded patients with mitral valve disease and patients who received antiarrhythmic drugs following surgery.

Beta-blocker therapy is most effective when provided both before and after cardiac surgery compared with only before or after surgery. Current guideline recommend treatment with an oral β-blocker to prevent POAF in patients undergoing cardiac surgery.2 Digoxin has very limited efficacy in the postoperative setting owing to enhanced sympathetic drive resulting from the surgical stress.4 I think the results of the study would be stronger if they used AF prophylaxis in all patients. Because inflammation has a major role in the pathogenesis of POAF, the main limitation of this study is the lack of data about systemic inflammation markers. An another important point is whether LV diastolic dysfunction be assessed by E/e’ only.

Finally, the total hospital stay of the patients was relatively long and longer hospital stay is associated with complications such as sepsis and thromboembolic events and so there may be also a link between postoperative complications and POAF.

References

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(Released online November 19, 2013)