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Postoperative Atrial Fibrillation After Noncardiothoracic Surgery: Is It Different From After Cardiothoracic Surgery?

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Postoperative atrial fibrillation (AF) is the most common arrhythmia that occurs after both cardiac and noncardiac surgery. It is associated with an increased morbidity, longer hospital stay and higher hospital costs. In addition, one of the most important clinical consequences of postoperative AF might be an increased incidence of perioperative stroke.[1] There have been many investigations on the incidence, predictors, prophylactic strategies, and management of postoperative AF in patients undergoing cardiothoracic surgery. However, few studies have investigated the incidence and consequences of AF after noncardiothoracic surgery.

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New onset AF after cardiac surgery has been reported to occur in 12 to 40 percent of patients after coronary artery bypass surgery, and the rate is even higher after valve replacement surgery, as high as 60%.[2] Predictors associated with an increased risk of postoperative AF, after cardiac surgery, include advanced age, postoperative electrolyte shifts, pericarditis, a history of preoperative AF, a history of congestive heart failure, and chronic obstructive pulmonary disease. Focusing on the incidence and risk factors associated with new onset AF after thoracic (noncardiac) surgery, Vaporciyan and colleagues reported on 2,588 patients and found that the overall incidence of postoperative AF was 12.3%, somewhat lower than that with cardiac surgery; this is consistent with the results of previous reports.[3][4] Significant multivariate predictors of AF after thoracic surgery include a male gender, older patient age, history of congestive heart failure, history of arrhythmias, and history of peripheral vascular disease.[5]

New onset AF, after cardiac and thoracic surgery, is likely triggered by direct intrathoracic stimulation or atrial irritation. It is, therefore, not surprising that the incidence of AF has been found to be lower when surgery does not involve the thorax. In one prospective series of 916 patients over 40 years of age undergoing major noncardiothoracic surgery, the incidence of AF was 2.5%;[6] another more recently published study reported much lower incidence, 0.37%.[7] Sohn and colleagues added and extended the observations on the topic of AF after noncardiothoracic surgery in this issue of the journal. They report the incidence of postoperative AF after noncardiothoracic surgery was 0.39%, and found that it was a relatively rare complication; it was associated with older age, and emergency surgery, and it extended the hospital stay. Their observations of significant multivariate predictors are different from those reported by Vaporciyan and colleagues. However, diverse patient groups were studied and different cardiac monitoring was used. Therefore, interpretation of the results should be made with consideration of the differences between the studies.

The clinicians, especially cardiologists who are likely to care for patients prone to postoperative cardiac complications, consider which patients might benefit from prophylactic strategies. Prospective randomized trials have examined the utility of variety of pharmacological agents and nonpharmacological methods for prophylaxis in patients undergoing cardiothoracic surgery. Although the results have been conflicting, most investigators would agree that β-blockers can serve as effective prophylactic treatment with amiodarone and sotalol as alternative medications. It is uncertain whether such prophylactic medication would be effective in patients undergoing noncardiothoracic surgery because the mechanism of the postoperative AF might be somewhat different. If postoperative AF results from a preexisting electrophysiological substrate with a superimposed trigger, the latter factor might be more important in noncardiothoracic surgery. Therefore, extrapolation of the prophylactic strategies used in patients undergoing cardiothoracic surgery to the entire population of patients undergoing noncardiac surgery may not be warranted.[8]

Although most episodes of postoperative AF are self-

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limited, the natural course of postoperative AF after noncardiothoracic surgery should be defined. AF persisting for longer than 48 hours is associated with an increased risk of stroke or transient ischemic attack. Thus, after 48 hours of AF, anticoagulation should be considered, weighing the potential benefits against the risk of postoperative bleeding.[9)]

The article reported by Sohn and colleagues raises concern with regard to postoperative AF after noncardiothoracic surgery; they suggest that it might be different from AF after cardiothoracic surgery in its pathogenesis, natural course and required management. To date, there have been no randomized controlled trials on new onset AF complicating noncardiothoracic surgery. Therefore, larger trials are needed to provide evidence based safe and effective strategies for the management of new onset AF in patients undergoing noncardiothoracic surgery.

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