Intraoperative Factors Cause Postoperative Atrial Fibrillation? – Reply –

We thank Dr Gokalp and colleagues for their interest in our studies.^{1,2} We are grateful to them for pointing out some very important issues in our study on the evaluation of risk factors for postoperative atrial fibrillation (POAF).

The occurrence of POAF is multifactorial and many risk factors have been identified over the past 2 decades. These include underlying preoperative conditions, intraoperative factors and postoperative factors.³ Intraoperative factors are essential to the occurrence of POAF, and extracorporeal circulation (ECC) and aortic cross-clamp (ACC) times have been reported as risk factors. Although these factors are associated with an inflammatory response, they are not always identified as risk factors for POAF despite similar patients undergoing CABG.^{4–6} Moreover, in most of the studies, intraoperative factors are not identified as risk factors.³ This may result from the study design. In our study, patients had the same valvular disease and underwent a similar operation with similar ECC and ACC times. This was because our study was designed to evaluate the significance of preoperative variables, especially those related to echocardiography.¹ A previous study of aortic valve stenosis also had the same purpose.² Ascione et al evaluated patients undergoing off-pump and on-pump coronary artery surgery, and reported that the use of ECC with cardioplegic arrest was a predictor of POAF; however, ECC time was not a predictor of POAF.⁶ Almassi et al reported that in 3,855 patients undergoing several types of cardiac surgery, intraoperative predictors of AF were mitral valve repair, mitral valve replacement, no use of ice slush, and the use of an inotropic agent more than 30 min after the termination of ECC.⁷ Those studies included patients undergoing different procedures, and they were intended to evaluate intraoperative factors.

Ranucci et al reported that patients with an ECC time >96 min rapidly developed hyperlactemia, which was significantly associated with the incidence of POAF.⁸ This may help to explain the results of Qu et al, who showed that the ECC time in the POAF group was significantly longer than that in

the non-POAF group (107.2±35.4 vs. 79.1±31.9 min, $P=0.023$).⁴

We agree with your opinion and accept the impact and importance of intraoperative inflammation and oxidative stress as possible triggers of POAF. In our institute, 1,000 mg of methylprednisolone was always administered before starting ECC to reduce excessive inflammation. No other anti-inflammatory drugs were administered during the operation. The ECC procedure was the same for all the patients undergoing cardiac surgery during the study period.

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(Released online March 3, 2016)