Does Age Have an Effect on Systemic Inflammatory Response? – Reply –

We appreciate the valuable comments from Dr Gokalp and colleagues regarding our analysis of off-pump coronary artery bypass grafting (OPCAB) based on age stratification. They pointed out an important issue regarding the benefits of OPCAB in improving the outcome of high-risk patients. We believe that OPCAB has 4 major advantages that improve the short-term results: preventing embolic complications, especially stroke; reducing coagulation abnormality and the systemic inflammatory response after cardiopulmonary bypass; and reducing ischemia-reperfusion injury from cardiac arrest. Of these, the prevention of stroke and reducing the inflammatory response particularly contribute to favorable results of OPCAB in elderly patients with a variety of complications. Indeed, there was no case of intraoperative stroke in our study. Respiratory complications and renal failure are associated with inflammation, as well as other important concerns, in the elderly. The rate of respiratory complications (prolonged ventilation, re-intubation, and pneumonia) was relatively higher in the elderly group (≥75 years old); however, the in-hospital mortality rate did not increase with aging. We would like to emphasize that these respiratory complications were not as severe as those observed with conventional bypass surgery, such as pulmonary edema or acute respiratory disorder syndrome, but rather those caused by weakened expectoration of sputum or weakened respiration after general anesthesia. Therefore, these were not associated with hospital mortality. As for renal function after CABG, the effects of OPCAB on renal outcomes remain controversial.

We know that it is important to clarify whether or not there are any differences in the degree of inflammation among generations. Unfortunately, precise data on inflammatory panels and vital signs, such as tachycardia and hypo/hyperthermia, were not available in the present study. Although the degree of stress is the same, the body’s response definitely differs among generations. In other words, even if a procedure does not cause any problems in young patients, the same procedure may cause complications in elderly patients. We consider that this tendency is clearer with conventional CABG using cardiopulmonary bypass, which causes systemic inflammation, whereas OPCAB can alter the threshold and lead to complications in the elderly, such as infection, respiratory complications, and renal failure. We need to conduct further investigations to resolve these issues.

References


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