Dementia and Cardiovascular Surgery

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Japan’s population is aging faster than that of any other country in the world. On the other hand, advances in surgical techniques, postoperative management, and minimally invasive surgery have allowed an increasing number of elderly patients to undergo cardiovascular surgery with improved outcomes. However, patients with preoperative dementia often show postoperative decline in their quality of life (QoL) because of worsening of dementia. In previous clinical studies, the indications for surgery in elderly patients have mainly been investigated on the basis of age,1,2 with few studies considering postoperative QoL. Under these circumstances, the study by Terazawa et al in this issue of the Journal provides valuable insights in relation to discussing the indications for surgery and surgical techniques in this population.3

Terazawa et al evaluated the influence of preoperative cognitive function, as assessed by the Mini-Mental State Examination (MMSE), on the outcome of cardiovascular surgery. They report that hospital mortality was significantly higher in the dementia group (MMSE score <24) than in the non-dementia group, and was especially high (25%) among patients with an MMSE score <20. They identified an MMSE score <24, low serum albumin, and aortic surgery as risk factors for hospital death, and pointed out a strong association of delirium with pneumonia. However, this study had several limitations, as stated by the authors, such as only assessing patients who underwent surgery and not evaluating the indications for surgery or surgical techniques according to the MMSE score. In addition, it is important to not only consider hospital death, but also life after discharge. For example, will the patient be able to live independently without needing support? Therefore, examination of the postoperative condition should include the severity of dementia (worsened, unchanged, or improved), management of medications, and frailty. In order to find appropriate treatment for patients with dementia, the indications for surgery and the surgical techniques suitable for patients with an MMSE score <20 should be examined. Accordingly, it is hoped that Terazawa et al will be able to further extend their studies.

Miller et al compared the change in MMSE score between patients undergoing surgical aortic valve replacement (SAVR) and those receiving transcatheter aortic valve replacement (TAVR), and reported that the MMSE score at discharge decreased by at least 4 points vs. before surgery in 10.9% of the SAVR group and in 2.5% of the TAVR group (P=0.06).4 Mehaffy et al5 examined the outcomes of vascular surgery, including treatment for peripheral vascular disease, in patients with and without dementia. They reported that patients with dementia were older than those without dementia and had a higher prevalence of medical comorbidities, a significantly higher incidence of postoperative complications (52% vs. 16%; P<0.001), and significantly higher hospital costs. They concluded as follows: “Given the high risk of clinical and financial maladies, patients with dementia should be carefully considered and counseled before undergoing vascular surgery.”

Evered et al followed up patients for 7.5 years after CABG and found that dementia developed in 30.8%, a significantly higher rate than the background prevalence, suggesting that preoperative evaluation of dementia is important.6 A study of 4,774 patients with heart failure reported that the need for nursing care was high among these patients and dementia was an important predictor of requiring care.7 Hjelm et al reported that the prevalence of dementia was significantly higher among HF patients compared with those without HF. Considering that dementia patients usually have a high prevalence of depressive symptoms and that physical intervention is effective for both depression and dementia, cardiac rehabilitation may be useful for patients with depression and/or dementia to avoid dependence on nursing care.

Few studies take preoperative dementia into consideration when evaluating clinical outcomes. We hope that future studies will not only evaluate clinical outcomes based on age, but also in relation to conditions that are specific to elderly people, such as dementia and frailty. In patients with cardiovascular disease in particular, it is important to evaluate the necessity of surgery by considering the requirement for nursing care and cardiac rehabilitation, medications, and the long-term QoL after discharge.

References


