In this issue of the Journal, Ohira et al. report on the long-term safety and effectiveness of OPCAB, not only in younger patients but also in the elderly population. The distribution of age in their report is similar to that in a previous report using a national database in Japan (JACVSD; Japan Adult Cardiovascular Surgery Database). Their study group included 34% Young (<65 years), 42% Early elderly (65–74 years), and 24% Late elderly (≥75 years). The proportions of sex, diabetes mellitus, and cardiac status were also similar to the nationwide analysis. So their study population reflected the Japanese status in general. In-hospital mortality in their series was 1.0% overall, which is better than the nationwide report (1.4%). This excellent outcome may be attributed in part to procedure intention. The rate of OPCAB in Japan is approximately 60%, which is higher than in North America. In the study authors’ institute the ratio of OPCAB to total CABG cases was 81% (954 of 1,177), which is much higher than the Japanese average. And their case series was operated by only 2 surgeons over the 15-year study period. The authors explain that OPCAB is technically demanding, not only the anastomosis but also heart positioning, and they suggest that OPCAB cannot be performed by all surgeons, otherwise the outcome following OPCAB may be unfavorable, as in the ROOBY study. I agree with this in part, but disagree in another part. A good surgical procedure can be done by everybody provided they are trained appropriately. OPCAB should be able to be accomplished by a large number of surgeons following suitable training. OPCAB should not be a special procedure for a limited group of surgeons. Excellent education in OPCAB is the key to its expansion and penetration worldwide.

Several years ago, a multicenter study was done in Japan using the same nationwide database (JACVSD) regarding the effectiveness of OPCAB in comparison with conventional (on-pump beating or arrest) CABG (ConCAB) on the basis of propensity-matched analysis. At that time, only 120 hospitals (out of >600 hospitals) were involved in the Database and the mortality rate was worse than currently (hospital mortality was 2.1%/3.9%; OPCAB/ConCAB). But the effectiveness was apparent even in that era and some information is summarized in Table.

OPCAB is less invasive for patients, but more stressful and invasive for the surgeons. To overcome this situation, the education system for OPCAB should be prepared more intensively. Then the message from the ROOBY study will become attenuated and patients everywhere in the world will enjoy the benefit of OPCAB.

### Table. Propensity-Matched Analysis of Conventional CABG vs. Off-Pump CABG With Regard to Patient Baseline Characteristics and Morbidity: Summary of the Information From the Japan Adult Cardiovascular Surgery Database (2010)

| Baseline     | Conventional | Off-pump | P value |
|--------------|--------------|----------|---------|
| No.          | 2,283        | 2,301    |         |
| Age/male     | 68.2 years/76.9 % | 68.5 years/76.3 % | 0.31/0.63 |
| DM/PAD       | 49.2/14.6 (%) | 48.5/15.4 (%) | 0.62/0.48 |
| Renal failure| 13.4%        | 14.1%    | 0.49    |

| Morbidity                  | Conventional (%) | Off-pump (%) | Odds ratio (95% CI) |
|---------------------------|------------------|--------------|---------------------|
| Stroke                    | 2.0              | 1.2          | 0.42 (0.38–0.98)    |
| New dialysis              | 4.6              | 2.7          | 0.57 (0.41–0.78)    |
| Any reoperation           | 8.4              | 5.8          | 0.67 (0.53–0.84)    |
| ICU stay >8 days          | 10.0             | 5.3          | 0.49 (0.39–0.62)    |

CABG, coronary artery bypass grafting; CI, confidence interval; DM, diabetes mellitus; PAD, peripheral artery disease.
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