

Postoperative Stroke after Off-Pump Versus On-Pump Coronary Artery Bypass Surgery

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Objective

The value of off-pump coronary (OPCAB) over conventional (CCAB) coronary artery bypass surgery in reducing the risk of postoperative stroke is controversial. This issue has been evaluated in our recent clinical experience.

Material and methods

OPCAB was performed in 557 patients and CCAB in 445 patients. Preoperative stroke risk was calculated according to the Northern New England Cardiovascular Disease Study Group (NNECVDSG) stroke risk scoring method.

Results

OPCAB was associated with a lower, but not significant rate of postoperative stroke in the overall series (1.8% vs. 2.5%, $p=0.45$), a difference which slightly increased in the highest tertile of the NNECVDSG (2.8% vs. 4.2%, $p=0.75$). The postoperative stroke rate was significantly lower when the operation was performed by OPCAB surgeons employing routinely epiaortic ultrasound scanning compared with CCAB not employing epiaortic ultrasound scanning (0.4% vs. 3.9%, $p=0.015$). The NNECVDSG score (mean 4.6 ± 2.1 vs. 4.9 ± 2.2 , $p=0.189$) was similar in these groups.

Logistic regression showed that when adjusted for NNECVDSG stroke risk score and critical preoperative status, the treatment approach (OPCAB and routine epiaortic ultrasound scanning) was an independent predictor of postoperative stroke ($p=0.012$, OR 34.1, 95% 2.2-533.7).

Conclusions

The neuroprotective efficacy of OPCAB is marginal compared with CCAB. However, a decreased risk of postoperative stroke is likely in high risk patients undergoing OPCAB, particularly if epiaortic ultrasound examination is routinely employed for better planning of operative strategy aiming to minimize the risk of intraoperative embolism.