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A MULTIMODAL APPROACH TO THE PREVENTION OF POSTOPERATIVE STROKE IN PATIENTS UNDERGOING CORONARY ARTERY BYPASS SURGERY

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Purpose: Stroke is known to be multifactorial in origin. This study was designed to assess the effectiveness of a multimodal approach to preventing this complication in patients undergoing coronary artery bypass.

Methods: One thousand five hundred twenty-nine consecutive coronary artery bypass patients operated upon by a single surgeon from July 1994 to April 2008, were studied. Group 1 patients (n=1214) were operated upon prior to 2004. Group 2 patients (n=315) were operated upon after 2004. In Group 2 patients epiaortic scanning, selective use of proximal anastomotic devices and alternative cannulation was employed. Off pump coronary artery bypass (OPCAB) was utilized in 726 patients. On pump coronary artery bypass (ONCAB) was utilized in 803 patients. Preoperative risk factors including age, cerebrovascular disease, peripheral vascular disease, hypertension, and diabetes were examined in all patients. The incidence of postoperative stroke was determined for Group 1 and 2 patients as well as the individual cohorts of OPCAB and ONCAB patients.

Results: The overall incidence of stroke was 1.7% (26/1529). The postoperative incidence of stroke was 1.8% (22/1214) in Group 1 patients as compared to 1.0% (4/315) in Group 2 patients. The incidence of postoperative stroke was 2.4% (20/803) in ONCAB patients as compared to 0.8% (6/726) in OPCAB patients ($p < 0.05$).

Conclusions: OPCAB is an important tool for prevention of postoperative stroke. Adjunctive techniques for prevention of emboli from the ascending aorta may also reduce the risk of stroke in OPCAB and ONCAB patients.