

# CARDIOPULMONARY BYPASS AS AN INDEPENDENT PREDICTOR OF CEREBRAL EVENTS IN CORONARY ARTERY BYPASS GRAFTING

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**Introduction:** Cerebral complications represent serious causes of morbidity and mortality after cardiac surgery. Abolishing cardiopulmonary bypass (CPB) during coronary artery bypass grafting (CABG) on the beating heart allowed us to assess the hazard of adverse cerebral outcome associated with type of surgical technique used for coronary revascularisation.

**Methods:** A cohort of 805 consecutive CABG patients, 199 without CPB and 606 with CPB, were studied. Cerebral complications consisted of (1) persistent neurological focal deficits, (2) prolonged coma lasting more than 24 hours, (3) temporary neurological focal deficits or (4) delirium. Cerebral injury was defined as cerebral complications excluding delirium. Multivariate logistic regression analysis was carried out to assess the independent association of potential risk factors with adverse cerebral events.

**Results:** Cerebral complications occurred in 51 patients (6.3%) and cerebral injury in 19 patients (2.4%). Independent predictors of risk for cerebral complications were the use of CPB (odds ratio 5.2, 95% CI 1.6-17.5), carotid bruits (odds ratio 3.5, 95% CI 1.5-8.2), advanced age (odds ratio 1.1, 95% CI 1.0-1.1) and peripheral vascular disease (odds ratio 2.5, 95% CI 1.1-5.8). Negative cerebral outcome was more common in the CPB-group, varying from 2.4 for TIA, to 12 for delirium.

**Conclusions:** The contribution of CPB to the occurrence cerebral complications after CABG appears significant. This study confirms the beneficial effect of excluding the use of CPB during CABG in order to avoid cerebral complications, especially if concomitant risk factors like advanced age, carotid bruits and peripheral atherosclerosis are present.