

SCA 12

LOW HEMATOCRIT DURING CARDIOPULMONARY BYPASS IS ASSOCIATED WITH INCREASED RISK OF STROKE IN ADULT CARDIAC SURGERY

¹Karkouti K, ¹Djaiani G, ¹Fedorko L, ²Wijeysundera D, ¹Ivanov J, ¹Borger M, ¹Karski J, ¹Ghannam M, ¹Beattie W
¹University Health Network, Toronto, ON, Canada; ²University of Toronto, Toronto, ON, Canada

Background and Objective: The relationship between degree of hemodilution during cardiopulmonary bypass (CPB) and perioperative stroke has not been elucidated. The objective of this study was to evaluate the effects of low hematocrit during CPB on perioperative stroke while adjusting for a large number of perioperative variables known to have a relationship with stroke or anemia.

Methods and Results: With REB approval this observational study, detailed perioperative data which was prospectively collected on consecutive patients undergoing cardiac surgery with CPB from 1999 to 2001 at a tertiary care hospital. Multiple logistic regression analysis was used to control for confounding variables in order to obtain the independent relationship between nadir hematocrit during CPB and perioperative stroke.

The stroke rate in the 9117 patients included in the analysis was 1.4% (N=130). (Figure 1) Nadir hematocrit during CPB was an independent, strong predictor of perioperative stroke: each percent increase in hematocrit was associated with a 10% decrease in the odds of suffering perioperative stroke. (Figure 2)

Conclusions: Low hematocrit during CPB is an independent predictor of stroke in patients undergoing cardiac surgery. Although preliminary, the results suggest that the ideal hematocrit during CPB is somewhere in the range of 25-29%. Randomized controlled clinical trials comparing different degrees of hemodilution during CPB are required to confirm these findings.

Figure 1. Bivariate, unadjusted relationship between lowest CPB Hct and Stroke

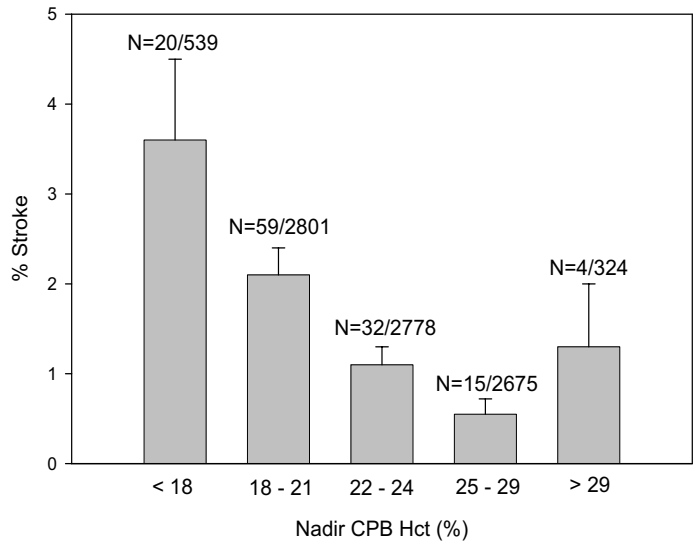


Figure 2. Estimated spline transformation and 95% confidence interval for relationship of CPB Hct and Stroke

