SCA 91
ADVERSE EFFECTS OF LOW HAEMATOCRIT DURING CARDIOPULMONARY BYPASS IN ADULTS

Ti L, Kang D
National University Hospital, Singapore, Singapore

Background: Hemodilution during cardiopulmonary bypass (CPB) has been traditionally practiced because of its salutary effects on microcirculatory flow and viscosity-flow relationship. Recent data suggests that hematocrits below 22% are associated with worse perioperative organ dysfunction and increased resource use. However, hematocrits below this level are commonly seen in our everyday practice. This study aims to investigate if hematocrits <22% are associated with greater morbidity in patients undergoing coronary artery bypass grafting under hypothermic CPB.
Methods: Demographic, surgical, and anesthetic data for all patients presenting for cardiac surgery at the National University Hospital have been prospectively entered into a database since January 2003. From this database, information from 178 patients presenting for coronary artery bypass surgery with CPB from January 2003 to September 2003 was extracted. Patients were divided into 2 groups based on their lowest hematocrit during CPB: <22% (Low group) and 22% (Normal group). Statistical analysis was with unpaired t-test or chi-square test as appropriate.
Results: 95 patients were in the Low group, while 83 were in the Normal group. The patients in the Low group were older [63(8) vs. 57(9)], smaller [BSA 1.67(0.15) vs. 1.83(0.13), and had more females (30/95 vs. 5/78). There was no difference in the rates of major adverse cardiac events [stroke, myocardial infarction, angina], mortality, renal dysfunction [taken as a doubling of baseline serum creatinine postoperatively], myocardial dysfunction [taken as utilization of adrenaline infusion in the intensive care unit], length of stay in the intensive care unit stay. However, patients in the Low group received more blood products and had a longer hospitalization [12(8) vs. 10(5)].
Conclusion: Despite being older and smaller, our patients with hematocrits below 22% did not have worse outcomes than those with hematocrits 22%. This is in contrast to recently published data. The reason for this is unclear, although this may be related to differences in race or practices. Another reason is that the hematocrit at termination of bypass may be more important than the lowest hematocrit during CPB. Our data does not recommend transfusing every patient to a hematocrit of 22.

Reference:

Habib et al. *J Thoracic Cardiovasc Surg* 2003; 125:1438-1450.