Low-Prime System Minimizes Transfusions and Hemodilution in Coronary Bypass

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The use of standard heart lung machines (HLM) in cardiac surgery leads to substantial hemodilution. This may be associated with impaired organ function and increased need of blood transfusions. Aim of this study was to evaluate the effect of the Priming Reduced Extracorporeal Circulation Setup (PRECiSe) on perioperative myocardial damage as well as on perioperative hemodilution and transfusions. The PRECiSe system represents a new low priming volume system with all features of HLM. In a matched prospective study 40 patients operated on using PRECiSe were compared to 40 patients using standard HLM in coronary artery bypass surgery. Priming volume was significantly reduced resulting in reduced hemodilution and transfusion requirements during and after extracorporeal circulation: in the PRECiSe group only 10 % of the patients needed transfusions vs. 35 % in the control group (p < 0.05) with an average transfusion rate of 0.16 vs. 1.25 units, respectively (p < 0.05). There were no significant differences in perioperative course of myocardial specific enzymes. The PRECiSe demonstrated to be safe and effective in coronary artery bypass surgery with respect to transfusion requirements and hemodilution as well as to patients safety represented by perioperative myocardial performance.

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