

Improving Cardiac Surgery Outcomes: Leukocyte Filtration

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Objectives: Activated leukocytes play a critical role in the pathogenesis of end organ dysfunction associated with cardiopulmonary bypass (CPB). The goal of this study is to determine if arterial leukocyte filters during CPB improve clinical outcomes after cardiac surgery.

Methods: A prospective analysis of all patients receiving only CABG or valve surgery with leukocyte arterial filters was compared to a case-matched cohort. One thousand patients were identified and compared to a cohort who did not have leukocyte filters used during CPB. The following study points were evaluated pre- and post-operative: WBC, platelet count, arterial blood gas, time to extubation, ICU stay, post-operative (AF) and total length of hospital stay. *P value less than 0.05 was considered significant.

Results: There were 2000 patients in the study. All patients only had primary CABG or valve surgery.

	CABG	CABG+LF	Valve	Valve+LF
n	750	750	250	250
Time to extubation (hrs)	9.1	5.4*	16.2	10.3*
Respiratory Quotient	354	427*	320	407*
Post-Operative AF (%)	26%	18%*	31%	19%*
Mean length of stay (d)	5.2	4.7	7.2	5.4*

Conclusions: The use of arterial leukocyte filters during CPB leads to earlier extubation, improved oxygenation, and decreased post-operative atrial fibrillation in patients undergoing CABG or valve surgery.