26456 - PERIOPERATIVE TRANSFUSION INCREASES MORTALITY

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INTRODUCTION: Mortality after non-cardiac surgery is .7-.8 % at 1 week and 2-3% at 30 days. This study was undertaken to evaluate the independent risk factors associated with post operative mortality.

METHODS: Following REB approval, perioperative data on patients having non-cardiac surgery was prospectively collected in a clinical registry. Patients whose hospital stay was to be less than 24 hours were excluded. This registry was combined with data from the hospital acute pain service database (APS Manager), the hematology database (Hemocare) and the cardiology database. Linking these diverse databases allowed a detailed report for each patient's perioperative period. Analyses were performed using SAS version 8.20. The independent variables for the initial study were known cardiac risk factors, anemia and RBC transfusion, and perioperative drug use. The dependant variable was in hospital death. In the post hoc analysis the dependant variable became 'any' RBC transfusion, and nineteen independent variables were studied for their relationship to transfusion, using descriptive statistics and logistic regression.

RESULTS: The final study sample consisted of 2996 patients, with 72 deaths (2.4%). 5 pre-operative risk factors (hx of CAD, CHF, DM, Renal Dysfunction, CVA), 6 drug therapies (Beta Blocker, Nitrates, Statins, ASA, ACE inhibitors, Calcium Channel blockers), anemia and transfusions were analyzed. The results of the multiple logistic regression analysis are seen in the Table (model c-index 0=0.874). Transfusion of RBC was independently associated with death (OR 2.9, 95% CI 1.5-5.8), with the strongest overall predictor of death being transfusion of 3 or more units RBC (OR 7.5, 95% CI 3.9-14.5). In post hoc analysis the strongest variable associated with RBC transfusion is pre operative anemia.

DISCUSSION: This study indicates that a blood transfusion is associated with an increased risk of death. Moreover, the transfusion of 3 or more units of RBC is the strongest predictor of death in this patient population. No drug therapy remained in the model predicting death. This work highlights the need for further investigation into means of decreasing blood loss and transfusion.

Independent Predictors of Post-operative Death				
	Odds Ratio	95% Confidence Interval	P-value	χ^2 Statistic
<i>Cardiac Risk Factors</i>				
Congestive Heart Failure	10.73	4.7-24.2	<0.0001	32.5
<i>Post Operative Events</i>				
Myocardial Infarction	5.2	2.7-10.2	<0.001	24.1
<i>Transfusion (RBC)</i>				
None	Reference			36.57
1-3 units	2.9	1.5-5.8	<0.0001	
More than 3 units	7.5	3.9-14.5	< 0.0001	
<i>Anemia</i>				
Greater than 110	Reference			31.3
90-110	2.93	1.46-5.86	<0.0001	
<90	6.7	3.43-10.06	<0.001	

C index =0.874