

Association of Red Cell Transfusion with Mortality in Patients with Acute Lung Injury.

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Background Red blood cell (RBC) transfusion has been associated with increased morbidity and mortality in a variety of clinical settings. We assessed the effect of RBC transfusion on in-hospital mortality in patients with acute lung injury (ALI).

Methods Cohort study of 248 consecutive patients with ALI. RBC transfusion was evaluated both as a dichotomous and continuous variable, with outcome being in-hospital mortality, adjusted for clinical confounders and length of total hospital stay.

Results: Overall in-hospital mortality was 39.5%. Of these patients, 207/248 (83.5%) received one or more units of packed red cells. The transfusion of any packed red cells was associated with an increased risk of death, with an adjusted odds ratio (OR) of 3.12 (95%CI: 1.28, 7.58, $p < 0.001$). The overall OR per unit was 1.06 (1.04, 1.09, $p < 0.001$) in the complete multivariable model. Transfusion after ALI onset was associated with an adjusted OR of 1.13 (1.07, 1.20, $p < 0.001$), while transfusion before ALI onset was not associated with higher risk. The adjusted OR per unit of non-leukoreduced RBC transfused was 1.14 (1.07, 1.21, $p < 0.001$), while the adjusted OR for leukoreduced cells per unit transfused was 1.06 (95% CI: 1.03, 1.09, $p < 0.001$).

Conclusions The transfusion of RBCs in patients with ALI was associated with increased in-hospital mortality. This risk occurred with RBC transfusion after the onset of ALI, and was greater for nonleukoreduced than for leukoreduced RBCs. Aggressive transfusion strategies in patients with established ALI should be questioned, pending further study.