Blood Transfusions and Mortality Among Critically Ill Patients

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To the Editor: Dr Vincent and colleagues[1] found that patients in the intensive care unit (ICU) who received transfusions were also at higher risk of mortality, and that this difference persisted even after accounting for differing degrees of organ dysfunction. Neither the authors nor Drs Hébert and Fergusson[2] in the accompanying Editorial discuss transfusion-related acute lung injury (TRALI) as an explanation for the increased mortality among those who received transfusions. The true incidence of TRALI is unknown, but it is considered to be one of the most common but most underdiagnosed adverse effects of transfusion, particularly in its milder presentations.[3] We believe that future research on the clinical consequences of blood transfusion should consider this important and, until recently, overlooked complication of blood transfusion.

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To the Editor: From their observational study, Dr Vincent and colleagues[1] reported that transfusion was associated with an increased risk of mortality at all hematocrit levels in a heterogeneous group of critically ill patients. In their accompanying Editorial, Drs Hébert and Fergusson[2] suggested that this study provides evidence concerning the role of transfusion in patients with ischemic heart disease. We disagree.

In a larger, observational study of patients with acute myocardial infarction we found that transfusions were associated with opposite results—ie, a reduction in mortality for patients with a hematocrit of 33% or less.[3] Both of these observational studies are susceptible to bias, but we believe the reason for the disparity between the findings is most likely due to differences in the populations studied. In the study of Vincent et al, a minority of patients were primarily admitted for coronary ischemic heart disease, and only 104 of the 702 treated patients received a transfusion for an indication related to coronary artery disease. The sample of patients with coronary disease was too small to determine whether transfusion provided a benefit to these patients, particularly at lower hematocrit levels. This point is important because previous epidemiologic studies have documented an increased mortality risk associated with anemia in patients with ischemic heart disease. A subgroup analysis of the Transfusion Requirements in Critical Care Trial by Hébert et al[4] suggests that restrictive transfusion strategies were superior in critically ill patients except in those with ischemic heart disease. Furthermore, in a separate observational evaluation of transfusion practices, Hébert et al[5] found that transfusion was associated with a survival benefit when provided to patients with ischemic heart disease.

A randomized controlled trial is needed to definitively establish the role of red blood cell transfusion in patients with ischemic heart disease. In the interim, clinicians must judiciously weigh all available evidence to determine the role of transfusion in such patients. We believe that laboratory, epidemiologic, and observational clinical studies published to date support the continued use of transfusion in anemic patients with ischemic heart disease.

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To the Editor: Dr Vincent and colleagues[1] reported an association between transfusions and mortality in critically ill patients. Although the patients who received transfusions were sicker with higher organ dysfunction scores, and were more likely to be in shock, the authors attempted to match patients based on similar propensity scores. However, some of the variables used in their model, including the Sequential Organ Failure Assessment (SOFA) score, Acute Physiology and Chronic Health Evaluation II (APACHE-II) score, and presence of shock on admission predict mortality among critically ill patients more accurately than other variables in their model. We therefore wonder how the authors weighted the individual variables in their propensity score model. Of the 1307 patients who received transfusions, the authors were able to match only 516. We question how representative these 516 were of the total number of patients who received transfusions. This is especially important since the authors state that mortality rates between transfused and nontransfused critically ill patients were similar in the "sickest" patients.

In their Figure 2, the authors present a Kaplan-Meier analysis of survival differences between transfused and nontransfused patients. During the first week of admission, there seems to be a survival benefit in the transfused group. Nearly 70% of all transfused patients received their first transfusion within the first 2 days in the ICU. If there was a causal relationship be-