BACKGROUND

There is a growing body of evidence that transfusions alter host defenses against infection.¹ A meta-analysis of randomized controlled trials found that transfusions are associated with a 2.5-fold increase in the risk of developing a bloodstream infection. There is a dose-response relationship between transfusion and risk, with the greatest risk increase occurring between 1 unit and 2 units of transfusion.²³

OBJECTIVE

The objective of this investigation was to determine whether transfusion affects the risk of developing a bloodstream infection in a patient cohort.

METHODS

DATA SOURCES: University of Michigan Health System, 01/01/2000 through 09/30/2008.

STATISTICAL ANALYSIS: Chi-square test.

RESULTS

Cases were younger than controls and were more likely to be male. For patients who underwent surgery, the relationship was nonlinear such that the greatest increase in the probability of bloodstream infection occurred between 1 unit and 2 units of transfusion. For patients who received RBC units, the greatest change in the odds of developing a bloodstream infection increased by 40% for every week of increased storage (Table 3).

DISCUSSION

This study provides evidence that an infection originating in the urinary tract may affect the risk of developing a bloodstream infection. It suggests that transfusions alter host defenses against infection and that there is a dose-response relationship between transfusion and risk. The greatest increase in the probability of a bloodstream infection occurred between 1 unit and 2 units of transfusion. There was a significant relationship between RBC transfusion prior to the date of bloodstream infection in cases and surgery prior to the index date in controls.

RECOMMENDATIONS

The decision to order a RBC transfusion should be made on an individual basis, taking into account the patient's clinical status, the risk of developing an infection, and the potential benefits of transfusion. Our study suggests that if a RBC transfusion is ordered for a patient with a high risk of developing an infection, it may be prudent to consider administering a single unit of RBCs instead of the usual 2 units at a given time.

FURTHER INFORMATION:


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