References


To the editor:

Alloimmunization to red blood cell antigens by transfusion

In their impressive report in a previous issue of Blood, Higgins and Sloan examined large patient databases and developed a model of alloimmunization to red blood cell antigens as a stochastic process. They identified a subgroup of recipients that had a substantially increased risk of alloimmunization that was independent of common disease states, age, or number of alloantibodies previously formed. Their model suggests that approximately 13% of the transfusion recipient population are responders and at risk of forming red blood cell alloantibodies.

The authors mention that there are reports that have identified a higher proportion of red blood cell alloantibodies in patients with sickle cell disease (SCD). They also state that they have excluded “any antibodies for these patients” from their report. Indeed, there are numerous studies that have found rates of alloimmunization in patients with SCD between 18% and 36%. For example, Rosse et al reported an alloimmunization rate of 18.6% in 1814 patients with SCD who had been transfused. (Unlike Higgins and Sloan, they also noted a strong correlation between the prevalence of alloimmunization and the number of transfusions received.) Garratty summarized 12 reports, encompassing 2818 transfused SCD patients, that collectively found a mean and median alloimmunization rate of 25%. It would be interesting for Higgins and Sloan to comment on how their stochastic modeling aligns with the widely reported higher rate of alloimmunization in patients with SCD. Do they feel that the well-known disparities in antigen frequencies between SCD patients and the blood donor population, as well as the immunocompetence of SCD patients, fully account for the difference between these reports and their findings?

Response

Other factors may contribute to differences between sickle cell and non-sickle cell patients

We appreciate the comments by Dr Mintz concerning the differences in alloimmunization rates reported for sickle cell patients and our findings based on data that excluded sickle cell patients. In planning our analysis, we did not expect sickle cell patients to differ from the general population. However, we excluded sickle cell patients because our study hospitals prospectively matched for the C, E, and K antigens for sickle cell patients and no other patients. Because we did not analyze sickle cell patients, we do not have direct evidence to explain the apparent
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