Titers of ABO antibodies in group O blood donors: patient safety and blood product supply remain a challenge

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Overt hemolysis from the transfusion of ABO incompatible plasma containing high titer anti-A or anti-B is a rare event. Plasma from group O donors and the transfusion of single donor platelets are most often associated with these reactions when transfused to group A or AB recipients. Several studies over the years have evaluated donor ABO antibody class, titer, and subclass in an effort to understand the breadth of the problem and reduce or eliminate this potentially serious immune complication of transfusion. In this regard, de França et al.[1] in this issue of the *Revista Brasileira de Hematologia e Hemoterapia* underscore the lack of a national standard of practice to guide the transfusion of incompatible ABO plasma transfusions. They point out that seminal work, started more than 2 decades ago, has yet to set policy and safety guidelines with the use of plasma that potentially contain life-threatening levels of anti-A or anti-B.[2] de França et al. examined over 5% of their blood donors included males and females across all age groups in an effort to understand which donors pose the biggest risk for the transfusion of high-titer anti-A or anti-B. Not surprising they found that ABO antibody titers decrease with age, with older males having the lowest titers by age 50. Cumulatively, nearly 1 in 10 plasma contain anti-A titers ≥ 128. Their work suggests that targeting ABO incompatible plasma and platelets from older males would lower the risk, if one assumes titers over 64 by the doubling-dilution method (generally titers > 100 are regarded as critical) pose significant risk of hemolysis. However, there is still a 1:20 (5.3%) chance that plasma from males over 50 will contain a titer ≥ 128. Thus, targeting sex and specific age groups as surrogate markers for the transfusion of ABO incompatible platelets could hardly be considered safe practice, although it would be a step in the right direction.

The lack of a standardized test and the impact on blood product availability is having an effect on the ability to drive policy and develop meaningful guidelines. Methodology appears to be a major issue. de França et al. used direct agglutination, however, other studies have used a test tube indirect antiglobulin test (IAT), gel micro-column agglutination in an IAT, and flow cytometry to measure the amount of anti-A,B, anti-A and anti-B. The measurement of anti-A,B does not appear to provide any additional information on titers when compared to anti-A (de França et al.[1] Table 1). One problem with defining a standard may be the lack of studies necessary to correlation these methods and thus an agreement on the critical titer for which non-ABO matched platelet transfusions should be avoided. European blood centers have addressed the issue of titers and have identified low-risk titers for ABO incompatible plasma transfusions. It is important to establish critical ABO antibody titers by population (national), using the most clinically relevant method, since it appears that diet and ethnicity may result in significant differences in titers.[3,4] Performing population estimates for anti-A and anti-B levels across blood donors determines the frequency of high titers and help estimate the cost of implementing a nationalized testing policy. de França et al. have made a significant contribution in this regard. However, the challenge remains to quantify the impact that such a policy will have on the provision of plasma containing platelet products to recipients.[5]

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