Review of: "Early Blood Transfusion After Kidney Transplantation Does Not Lead to dnDSA Development: The BloodIm Study"

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The authors performed an analysis of the outcomes after a kidney transplantation of patients who had a blood transfusion and the risk of development of de novo donor specific antibodies (dnDSAs) which might be triggered by these transfusions.

They conclude that early blood transfusion did not induce dnDSA in their cohort of patients and suggests that it might be safe to provide early blood transfusions for patients as long as they have the protective effective of ATG induction therapy which seemed to prevent development of dnDSA early post-transplant.

Their results seem to be at odds with other studies looking at the development of dnDSA post-transplant in patients who have received blood transfusion. However, they argue the merits their study compared to the other studies with specific mention of the protective effect of ATG induction. The premise is that ATG induction, which is a depleting form of induction, may decrease the potentially sensitizing effect of early post-transplant blood transfusion.

The authors acknowledge that the major limitation of their study is the retrospective nature of the study and the fact that the focus was only on pre transplantation DSA free patients which prevents any conclusion or generalization on the post transfusion revival of pre-existing DSAs.

Their study is carefully carried out but deviates from the observations by others, but they point out that the difference in induction therapies and the timing of RBC transfusions performed beyond one year may explain the differences in these studies.

Although the study also gives us some insight into potential mechanisms of induction and their role in the development of DSAs, there are other factors that need to be considered in the proper interpretation of the results.

Most patients in this study cohort were primarily on ATG and only about 13% were on basiliximab, so any mechanistic conclusion on the specific nature of ATG induction and its role in DSA formation cannot be deemed conclusive. Moreover, all patients were on maintenance immunosuppression which was uniform, but this also limits the generalization of these

results to other forms of immunosuppression.

One of the important findings was that in the early RBC positive group there were significantly more women than men in the group (0.001). It would be nice to comment about how gender differences in RBC may be one of the factors for their observation. It is not clear if this was one of the factors that was normalized statistically during analysis. Additionally, were the women who received transfusions evaluated for previous pregnancy history or previous transfusion history? This is relevant because previous pregnancy or transfusions can result in non-sensitization/sensitization, and they actually reflect subsequent response to exchange blood transfusions posttransplant.

The significantly higher amount of ATG induction in the early RBC positive group must also be discussed, since they might have been skewing of data. Again, it is unclear if these differences were corrected during the analysis.

The interesting observation about the detrimental effects of hemoglobin levels in terms of dnDSA is novel since lower hemoglobin levels may trigger a greater number of RBC transfusions leading to sensitization. They also hypothesize that anemic patients may have a propensity to have more inflammatory events. Such observations have been seen in T type 2 diabetes patients where anemic patients almost always had some form of deterioration of kidney function.

Overall, the study represents a significant observation about the opportunity to have a safe RBC transfusion especially in the early post-transplant, utilizing the protective effect of ATG based induction. However, the differences between induction therapies and immunosuppression therapies must be more widely studied before conclusive evidence about DSA development following RBC transfusion can be established.