In vivo Adsorption of Isoagglutinins with Incompatible Red Blood Cell Transfusion in Stem Cell Transplant Recipients

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In the first issue 2016 of TRANSFUSION MEDICINE AND HEMOTHERAPY the transfusion support for ABO-incompatible stem cell transplantation is reviewed [1, 2]. The authors focus on reduction of recipient isoagglutinins by plasmapheresis and red blood cell (RBC) depletion of the graft to avoid immune-hematologic consequences of ABO-incompatible stem cell transplantation. The old, nearly forgotten method of in vivo adsorption of recipient isoagglutinins was cited but not extensively mentioned although it is a simple, low-cost technique to circumvent immediate and delayed hemolysis after ABO-incompatible stem cell transplantation [3–5].

Our transfusion/transplant team has successfully performed ABO-incompatible transfusions with donor type RBCs in ABO-major-incompatible stem cell transplantation up to a recipient isoagglutinin titer of 1:32. ABO-incompatible RBCs were slowly transfused monitoring vital signs at an intensive care unit. Isoagglutinin

titers were controlled after each ABO-incompatible transfusion using standard laboratory techniques. In the case of O/A recipient-donor blood group constellation we started adsorption of recipients' Anti-A with one or two units of A₂-RBCs followed by transfusion of A₁-RBCs with a higher number of A-antigens per RBC. Using the technique of in vivo adsorption of isoagglutinins recipients' anti-A or anti-B titer were reduced thereby allowing a safe infusion of the graft. Of note, Scholl and co-workers [5] reported not only on the lack of severe complications of in vivo adsorption of donor-type RBCs but also on a significant reduction of the demand of RBC transfusion between transplantation and day 30.

In vivo adsorption of isoagglutinins with donor-type RBCs is easy to perform and is more cost-effective than plasmapheresis. Furthermore, ABO-incompatible transfusion in mismatched stem cell transplantation avoids graft manipulation ensuring the quality of an un-manipulated graft.

References

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