

The management of an immune-mediated acute hemolytic transfusion reaction is mainly supportive. Prompt interruption of the transfusion, biological workup, and a thorough clerical check to prevent a possible second misidentified transfusion are crucial initial steps. Vigorous hydration with isotonic saline and diuretics to maintain urine output is recommended. Although often self-limiting, acute hemolysis may also require forced alkaline diuresis, correction of electrolyte abnormalities, and pressor support as needed. In patients with DIC and severe bleeding, PC, plasma, and cryoprecipitate or fibrinogen may be required. When transfusion of incompatible RBCs is unavoidable, prophylaxis with steroids (100 mg of hydrocortisone) just before the transfusion and repeated 24 h later and polyvalent immunoglobulin (1.2–2.0 g/kg per day over 2–3 days, initiated just before the transfusion) have been successfully used to prevent or minimize acute and delayed hemolysis.

Immune-mediated hemolysis may also occur after allogeneic hematopoietic transplantation (most often involving a peripheral blood stem cell graft) or, more seldomly, solid organ transplantation. Minor ABO incompatibility, with subsequent red cell destruction in the recipient, is the most common cause of clinically significant hemolysis in such cases. Viable donor B lymphocytes, called “passenger lymphocytes,” transferred passively with the graft, may produce alloAbs (including anti-D or anti-A1 in an A2 donor) that target recipient red cells. Such hemolysis has been reported to develop 5–14 days after transplantation. Reduced-intensity conditioning regimens and cyclosporine as prophylaxis against GVHD or rejection have been associated with increased risk. Transfusing RBCs compatible with the graft donor and the use of GVHD prophylaxis able to target B cells (e.g., methotrexate) have significantly reduced the incidence of passenger lymphocyte syndrome. Allogeneic hematopoietic transplantation may also result in acute hemolysis due to incompatible donor-derived red cell (and precursor) destruction by the recipient alloAbs (i.e., major ABO incompatibility). Prolonged pure red cell aplasia may occur in such a situation. Graft deserythrocytation will reduce the risk of early acute hemolysis.