HFDN TECHNICAL CASE #2, ANSWERS

Case study by Jim Perkins, M.D.) (©2009)

Indian Immunohematology Initiative

1. What is the specificity of the patient's antibody?

   Anti-D, passively acquired from administration of RhIG.

2. Is any further workup needed to prove it?

   Typically identification of an antibody requires 3 reactive antigen positive cells and 3 non-reactive antigen negative cells. In addition, the standard list of clinically significant antibodies should be ruled out. In this case the latter criterion is met, but the first is not. Given the history of RhIG administration we would not bother to test another D-positive, reactive cell be found. Instead it's more important to rule out other antibodies.

3. Why aren't all of the antigen-positive cells reacting? (Hint: What cells have the strongest expression of the antigen?)

   Note that the two R2R2 cells are reactive, but the R1R1 screening cell is not. R2R2 cells have the strongest expression of the D(Rh) antigen, and therefore are the most sensitive in detecting weak forms of anti-D.

4. When she delivers, is this patient a candidate for RhIG? If so, what other testing should be done? What other positive test results might we observe?

   In this case, since the anti-D is passively acquired, it is not a contraindication to RhIG. The newborn's cord blood RBCs should be tested for the D(Rh) antigen. If the newborn is Rh positive, the patient is an RhIG candidate; if it is negative RhIG can be omitted. In addition, if the cord blood RBCs are D-positive a post-partum maternal specimen should be screened for excess fetal maternal hemorrhage to determine if the patient needs more than one dose.

   We would not be surprised to see a positive DAT on the umbilical cord RBCs. If the newborn's RBCs are ABO compatible with the mother's plasma, and passive anti-D is the only unexpected antibody detected, our facility would not perform an eluate in order to characterize the reason for the positive DAT. Otherwise an eluate would be prepared and tested.