

**INDIAN IMMUNOHEMATOLOGY INITIATIVE  
CASE OF THE MONTH: May 2008**

**Questions:**

1. What is the specificity of the antibody in the patient's sample? Is any other testing required to confirm this specificity?

*Anti-K. The other common clinically significant alloantibodies have been excluded. No additional serum testing is required. If available, anti-K should be used to test the patient's red cells for the K antigen. They would be expected to type K-.*

2. What can be deduced about the crossmatched units from the compatible results?

*The units are K negative.*

3. Should any further testing be performed on the units prior to transfusion?

*If anti-K reagent were available, the units could be confirmed as K neg.. However, limited testing to date has shown that the K antigen has a very low frequency in the Indian population. It should be sufficient to demonstrate that the units are compatible in an antiglobulin crossmatch.*

4. What probable antibody specificities are now apparent in the patient's sample?

*Previously identified anti-K, and a new anti-Jk<sup>a</sup>*

5. Are there some alloantibodies that can't be excluded? What additional testing should be performed?

*Anti-C, anti-Fy<sup>a</sup>, anti-N cannot be excluded. Anti-s is excluded on one single dose (S+s+) antigen positive cell. Cells that are K-, Jk(a-) and positive for C, Fy<sup>a</sup>, N should be tested to exclude these alloantibodies. If possible, each should carry a double dose of the antigen. In addition, a K-Jk(a-) S-s+ cell should be tested, if available.*

6. What is the likely cause of the patient's drop in hemoglobin? What testing can be done to support this?

*The patient has likely cleared from her circulation most of the red cells that were transfused to her a week ago.*

*Addition testing might include:*

- 1) Demonstrating that the previously transfused units were now incompatible (and Jk(a+), if possible)*
- 2) Performing a direct antiglobulin test and elution studies.*

7. What antibody was recovered in the eluate from the patient's red cells? Is any further testing required?

*Anti-Jk<sup>a</sup>*

*Anti-C, and anti-N are not excluded. Anti-s is excluded on S+s+ cells only. Additional cells should be tested with the eluate to exclude these alloantibodies. See the answer to question 5.*

8. If the patient received two units of incompatible red cells, why are the direct antiglobulin test and eluate reactivity not stronger?

*Most of the incompatible red cells have already been cleared from her circulation.*

9. What would you predict would be the antigen type of the patient and the two transfused units for the antigen in question?

*The patient is likely Jk(a-) and the two transfused units are Jk(a+)*

10. Why did the patient's sample change in reactivity in such a short time? Could this have been prevented?

*The patient was likely already immunized to the Jk<sup>a</sup> antigen from previous pregnancies or transfusions.*

*The antibody titer dropped below levels detectable in the gel test. Kidd system antibodies are notorious for this type of behavior. Upon re-stimulation by the most recent transfusions, the antibody titer quickly rose in an anamnestic response. Assuming the initial pretransfusion testing was performed correctly, this reaction could not have been prevented.*

11. How might this be prevented in the future?

*Prevention of this type of delayed reaction requires careful documentation of the presence of anti-K and anti-Jk<sup>a</sup> in the patient's record. Each time a patient presents for pretransfusion testing, a careful search should be made of previous records to review any known antibodies or other transfusion complications. Some facilities will give the patient a card listing the identified antibodies and the type of units required for transfusion. If the patient is instructed to present this card to a doctor intending to treat her with transfusion, this will alert the blood bank to her antibody history even if the care is being given at a different hospital.*

12. How should we now select compatible blood for this patient? What percentage of donors is expected to be compatible?

*Donor units typed as K-, Jk(a-) should be crossmatched for future transfusions.*

*In a European population, approximately 23% of donors are Jk(a-) and 91% of donors are K-. This would give a combined frequency of approximately 21% of donors being both K- and Jk(a-) (0.23 X 0.91 X 100%). In the Indian population, virtually all donors are expected to be K-. The frequency of Jk(a-) individuals in this population has not been established.*