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Crossmatch testing for patients with a weak (cold) antibody present only in reverse grouping at 4 degrees C

A blood banker affiliated with a Veterans Administration Hospital reports that when a patient has a very weak/undetectable reverse grouping result that is only detectable when the back typing is incubated at 4C, assuming that the patient in question does not have any unexpected RBC alloantibodies (past or present), what kind of crossmatch test would colleagues use for selecting compatible RBC units for transfusion? Would colleagues use an Immediate Spin crossmatch that is incubated at 4C to "detect an ABO incompatibility" with the weak serum ABO antibody of the patient, in the event that an ABO-incompatible donor unit is inadvertently selected for transfusion? The inquiring colleague has been unable to find any written information on this issue in the current editions of the AABB Technical Manual or Practical Guide to Transfusion Medicine, and adds the following question "Does this even matter? Since the antibody can only be detected in vitro at 4C, how could it react in a patient at 37C?"

The following responses have been received.

1. **An SBB technologist** (who is now studying to become a physician) reports that he would perform whichever **crossmatch method that is most sensitive for detecting the patient's ABO antibodies**, whether this turns out to be an antiglobulin crossmatch or a 4C crossmatch. He would **not** automatically assume, with an antibody of the ABO system, that weak in vitro reactivity of an ABO antibody predicts good in vivo survival of transfused ABO incompatible RBCs, in the event the crossmatch failed to detect the incompatibility.
2. **The Editor** reports that at the **USC Kenneth Norris Cancer Hospital** (where he is transfusion service medical director) such a patient would be **crossmatched using a Gel-AHG crossmatch**. The **immediate spin crossmatch is reserved for** patients who have a current negative Gel-AHG antibody screen, no history of any unexpected antibodies, no history of any transfusion reactions, and **no other immunohematologic abnormalities**. In the case under discussion, the patient appears to have an ABO grouping discrepancy, which **is** an immunohematologic abnormality. It would not add significantly to the overall workload to handle such a patient with an antiglobulin crossmatch. The majority of patients crossmatched at the Webmaster's transfusion service qualify to be crossmatched using an immediate spin test.

ADDENDA Aug. 22, 2003

3. A colleague reports that for a case like this they currently confirm the ABO at 4C, if necessary, and then perform routine immediate spin crossmatch. If they are not able to confirm the ABO group, they transfuse group O RBCs.

ADDENDA Aug. 24, 2003

4. **A colleague from Michigan** who is a recognized authority in immunohematology reports (verbatim) that "**the object of 'compatibility tests' - in the absence of unexpected antibodies - is to ensure that units of the appropriate ABO type are released for transfusion**. Since the serum in the case under discussion lacks isoagglutinins active at 22-37 C, **neither** an antiglobulin nor an immediate-spin crossmatch are appropriate here. My suggestion, in the absence of an electronic crossmatch process, is to **perform an ABO forward type on the intended recipient and donor unit at the time the unit is assigned to the patient**. I am also aware of the Canadian practice to repeat the reverse type on all patients at the time immediate-spin crossmatches are performed. This serves as a concurrent positive control, demonstrating that the patient's isoagglutinins are indeed reactive."

Please submit comments to the [e-*Network Forum*](#).

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CBBS e-*Network Forum* Editor & Moderator



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Posted: August 21, 2003

Addenda: Aug. 22 & 24, 2003