ASK A SPECIALIST

Ask a Pathologist: Warm Autoantibodies

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Question

My patient is anemic and I ordered a type and screen, and the blood bank told me they are unable to find compatible units due to a warm autoantibody. What is the next step?

ANSWER

Warm autoantibodies are antibodies that bind to a patient's own red blood cells at normal body temperatures. These antibodies are commonly encountered in transfusion medicine, and are generally identified through routine type and screen testing. These antibodies often present as a panagglutinin, where the patient's plasma reacts with all reagent red blood cells that it is tested against. The direct antiglobulin test (DAT) may be positive for IgG + complement (67% of cases), IgG only (20%), or C3 only (13%).

In most cases, warm autoantibodies do not cause significant red blood cell hemolysis. A study of 100 consecutive patients with warm autoantibodies found evidence of warm autoimmune hemolytic anemia (WAIHA) in only 29 patients, and 20 of these patients had diagnoses classically associated with WAIHA such as autoimmune disorders and hematologic malignancies. The investigations that are routinely performed in the blood bank to identify warm autoantibodies do not determine if the antibody is causing red blood cell hemolysis. When a warm autoantibody is detected, additional studies to evaluate for potential hemolysis may need to be ordered such as haptoglobin, bilirubin, lactate dehydrogenase (LDH), reticulocyte count, and peripheral blood smear.

When preparing to transfuse blood products to patients with warm autoantibodies, it is very important to exclude the presence of other clinically significant non-ABO antibodies which may be masked by the warm autoantibody. Additional testing, such as adsorption studies, must be performed by the blood bank to remove or reduce the autoantibody so that underlying alloantibodies can be detected. These additional steps will increase the time needed to complete pretransfusion testing.

Once underlying alloantibodies have been identified or excluded, packed red blood cell (PRBC) units may be selected for crossmatch and transfusion if needed. If underlying non-ABO alloantibodies are present, units that are antigen-negative for the corresponding antigen must be selected. Since the warm autoantibodies generally bind to all red blood cells that they are reacted against, not just the patient's own red blood

cells, it is common for the crossmatch test to agglutinate when patient plasma is incubated with donor red blood cells from the selected unit. As long as the selected units are ABO compatible and negative for corresponding non-ABO antigens in patients who have additional non-ABO antibodies, PRBC transfusion may proceed despite the crossmatch incompatibility caused by the warm autoantibody. Patients with warm autoantibodies and an urgent or emergent need for PRBC transfusion should not have the transfusion delayed simply because of an incompatible crossmatch.

Although the risk of a serious reaction is increased when transfusing incompatible units to a patient with warm autoantibodies, most patients tolerate the transfusion well. In patients with WAIHA, transfusing an incompatible unit may result in an increase in hemolysis compared to the pre-transfusion rate. Incompatible units should be transfused slowly with careful monitoring of the patient for signs of a transfusion reaction, and only the minimum volume of PRBCs necessary to treat the patient should be used.

Notes

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