Lymphocytotoxic Panel Reactive Antibodies in Hemodialyzed Patients Treated with Recombinant Human Erythropoietin

N.A.	Niels Aage	Aunsholt ^a
G.	Gudrun	Steffensen ^a
J.V.	Johan Vestergård	Povlsen ^b
G.	Goran	Ahlbom ^a

^aDepartment of Medicine C, Aalborg Hospital, Aalborg, and ^bDepartment of Clinical Immunology, University Hospital of Aarhus, Skejby Sygehus, Aarhus, Denmark

Gudrun Steffensen, MD, Department of Medicine C, Aalborg Hospital, DK-9000 Aalborg (Denmark)

Dear Sir,

Patients with nephrogenic anemia run the risk of developing lymphocytotoxic panel reactive antibodies (PRA) due to repeated blood transfusions. PRA-positive patients are either not transplanted at all or they have to wait a prolonged time to find a suitable cross-match negative donor [1]. Besides, PRA may influence the success of a kidney transplantation.

Recombinant human erythropoietin (R-HUEPO) is effective in the treatment of anemia in chronic renal failure and thus may prevent blood transfusions and generation of lymphocytotoxic antibodies. Whether R-HUEPO can affect existing lymphocytotoxic antibodies has not been investigated extensively.

Twenty-two patients were treated with R-HUEPO during 6 months due to anemia requiring transfusion. An average hematocrit level of 37% was obtained within 2–3 months. The patient sera were tested for cytotoxic antibodies against a highly selected panel of at least 32 lymphocyte donors. Eight patients were PRA positive, 4 of whom were highly immunized, killing more than 70% of the lymphocytes. Three patients had unchanged titers of cytotoxic antibodies during R-HUEPO therapy. Three had declining titers and broad reactivity during treatment. Another 2 patients presented with declining titers during 4–5 months of treatment, then the antibody titer increased and broad reactivity occurred. One patient, with no PRA upon entrance to the study, developed multi-specific antibodies. Dithiothreitol treatment of the sera did not change the panel reactivity, indicating that all involved antibodies were of IgG class.

Of the 3 patients with increasing antibodies, 2 were transfused with red blood cells due to hemorrhagic events. One of these patients already had increased lymphocytotoxic antibodies due to pregnancy, but the blood transfusions increased the titers further. The 3rd patient, with no PRA upon entrance to the study, rejected a kidney graft during R-HUEPO treatment.

In some patients treated with R-HUEPO, lymphocytotoxic antibodies may decline with time. However, upon triggering the immune system with alloantigens, a prompt rise in antibody levels may occur. To prevent lymphocytotoxic antibodies in hemodialyzed patients, R-HUEPO therapy must be initiated before the need of blood transfusion.

Reference