Monitoring sialyl Lewis x (CD15s) on peripheral lymphocytes for the diagnosis of acute rejection

Sir,

To prevent graft loss, many investigators look for markers which are more helpful than serum creatinine for early recognition of rejection. Biopsy remains the only means to definitely establish the diagnosis, but there is a need for non-invasive methods.

We assessed the expression of the sialyl Lewis x (CD15s) antigen on peripheral lymphocytes, performing flow cytometry using monoclonal antibody (2H5), in 17 patients with rejection, 23 patients without rejection after renal transplantation, and 18 healthy volunteers.

CD15s is a ligand for selectins CD62E and CD62P on activated endothelial cells and platelets [1]. Kannagi et al. [2] have developed a monoclonal antibody (clone: 2H5), which recognizes a CD15s epitope on activated lymphocytes that is not recognized by classical antibodies.

We used clone 2H5 to examine CD15s antigen expression on activated lymphocytes. CD15s antigen was strongly expressed on the peripheral lymphocytes of all patients with rejection \((n = 17)\), but was only weakly expressed in the other groups. These findings indicated that, in the patients with elevated serum creatinine, CD15s might be a helpful marker for pinpointing the cause of creatinine elevation. Particularly in patients with long-term renal dysfunction owing to drug nephropathy, ATN, infection and arterial calcification, CD15s monitoring may be useful for the differential diagnosis of rejection or other causes after renal transplantation.

Biopsy was performed in 37 patients who were suspected to have rejection. Among them, more-than-moderate cell infiltration was observed in all of the 17 patients with strong expression of CD15s. The expression of CD15s on the peripheral lymphocytes was almost consistently accompanied by pathological findings in the rejected kidneys.

In all patients given steroid pulse therapy, CD15s antigen
was completely inhibited after the treatment. The mean fluorescence value for CD15s after the therapy in the rejection patients was suppressed to below the value in the control group, thus showing that steroids had an inhibitory effect on leucocyte cell adhesion.

In conclusion, the expression of CD15s antigen on peripheral lymphocytes promises to be a clinically useful marker of rejection. The measurement of CD15s by flow cytometry is a simple and non-invasive means to detect cell infiltration in the rejected kidney after transplantation. These preliminary observations also suggest that expression of CD15s on peripheral lymphocytes is a novel marker to ascertain whether steroid pulse therapy is effective.

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