Increased Expression of GPIb and GPIIb/IIIa Platelet Surface Glycoproteins in Renal Transplant Patients

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Dear Sir,

Cyclosporine therapy has improved survival of kidney grafts, but this has also caused a great number of toxic effects. The major complication is nephrotoxicity, which affects native and transplanted kidneys. Cyclosporine damages endothelial function: the most important marker of endothelial injury is the increase in plasma concentration of von Willebrand factor in transplanted patients. In renal allografts, platelet-fibrin aggregates were frequently seen in the first weeks after transplantation at high cyclosporine dosages and there is a predisposition to the haemolytic-uraemic syndrome. In the first weeks after transplantation, there is also a prothrombotic phase, associated with an increased incidence of thrombosis. Platelet hyperaggregability and activation are still present 1 year after transplantation [1].

The platelet surface glycoproteins GPIb, the receptor for von Willebrand factor, and GPIIb/IIIa, the receptor for fibrinogen, are closely related to the mechanism of platelet adhesion and aggregation and play an important role in platelet-endothelium interactions. In order to investigate the endothelial dysfunction in kidney transplant patients, we studied 13 cyclosporine-treated renal allograft recipients compared to 15 healthy controls.

Platelet surface receptors GPIb and GPIIb/IIIa were investigated with monoclonal antibodies CD42 and CD41 (Biorad, Italy) and a Bryte flowcytometer (Biorad). Mean values of GPIb glycoprotein (mean flow ± SD) in renal transplant patients were 61.69 ± 11.27 and in normal subjects 48.57 ± 10.10 (p < 0.0005). Mean values of GPIIb/IIIa glycoprotein in our patients were 537.59 ± 91.87 and in controls 379.87 ± 98.11 (p < 0.0005). These data support the hypothesis of a direct vascular injury by cyclosporine [2]: the alterations of platelet-endothelium interactions, mediated by an increase in the expression of platelet surface receptors, may have an important role in cyclosporine nephrotoxicity.

References


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