

VASCULAR INJURY IN ACUTE RENAL TRANSPLANT. ASSOCIATION TO C4d STAINING AND ALLOGRAFT SURVIVAL

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Objectives: Retrospective analyze of vascular injury in biopsies of kidney transplantation that developed acute rejection to evaluate the association with C4d deposition, histological findings, treatment and survival of allograft.

Materials and methods: Of 390 consecutive renal transplants performed at Reina Sofia Hospital (Córdoba, Spain) over 9-yr period (January 1997-December 2006), we evaluated 184 biopsies and confirmed acute rejection with different grading of vascular injury in 27 biopsies (14.6%). Eighteen patients had acute humoral rejection according to the Banff 97 criteria addition.

For C4d detection, biopsies were analyzed by an immunoperoxidase method on paraffin sections using C4d polyclonal antibody. Donor-specific-antibodies (DSA) were detected in post transplant recipient sera using flow-cytometry.

Results: A total of 27 patients of 184 biopsies performed during study suffered acute rejection with vascular injury. 24 of the 27 patients (89%) experienced acute rejection (AR) within the 2 first week post transplantation and were insensitive to steroid in 84.6%.

Demographics characteristic: Age recipient 43±13, Age of donor: 46±20. 48% female. Retransplants 2 9.6%. Cold ischemia 15.2 hours. Patients with delayed graft function (55.6%). PRA peak 48%. A total of 78.3% of biopsies revealed C4d + diffuse and 22 patients of 27 had DSA performed and were positive in 55.6 %.

Eleven biopsies revealed endarteritis without acute tubular injury or glomerular thrombi and C4d+ deposition was only 50%. Only one case had fibrinoid necrosis with C4d+.

In all the biopsies with glomerular thrombi or acute tubular injury, C4d+ deposition was detected in 94.4% the histological findings of glomerular thrombi were observed in 44% of 27 biopsies and C4d+ deposition detected in all cases.

The cumulative renal allograft survival was 55.5%, and it was worse in the C4d+ acute rejection group compared with the Cd4- acute rejection group, with a trend for the worse prognosis in those C4d+ acute humoral rejection cases that had (p=0.11). Patients treated with thymoglobulin experienced a better survival of allograft compared with no treated patients (p=0.40)

Conclusion: C4d+ is detected more frequently, when endarteritis is associated to histological findings of acute humoral rejection (acute tubular injury or fibrin thrombi). The glomerular thrombi is the histological findings associated with the worst prognosis. In our study C4d staining correlated with the presence of DSA in the case of glomerular thrombi in 60%.