MIXED IMMUNE CELL POPULATION IN INTIMAL ARTERITIS OF RENAL ALLOGRAFTS

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Objectives: Vascular rejection is characterised by immune cells infiltrating the arterial intima of allografts. Traditionally it is assumed that these cells are (T-) lymphocytes. This belief is also reflected by the common use of anti-lymphocytic drugs for treating vascular rejection in kidney transplantation. A recent study on a small number of cases however described that the majority of intimal immune cells are macrophages rather than T-cells. The aim of our study therefore was to determine the proportion of T-cells and monocytes/macrophages in a larger number of unselected cases of vascular renal allograft rejection.

Methods: Our study population consisted of 42 biopsies with vascular rejection (Banff Type II). Inclusion criteria were: among all biopsies with the diagnosis of vascular rejection performed between 1997 and 2003, we selected all cases with at least two freshly cut sections available, each containing at least one artery with intimal arteritis. Typing of immune cells was performed on paraffin sections by immunohistochemical double labelling with antibodies against CD68 (monocytes/macrophages) and CD3 (T-cells). C4d staining was also performed on paraffin sections. For evaluation we calculated the ratio of CD68 and CD3 positive cells in all arterial cross sections available. Cases that did not contain at least a total of 15 intimal immune cells were excluded from evaluation.

Results: The CD68/CD3 ratio ranged from 0,4 to 8,25 (median 1,1). That means that monocytes outnumbered T-cells in 57% of cases whereas T-cells predominated in the remaining 43%. The median value was used as cut-off level for defining two groups (i.e. low vs. high monocyte count) for statistical evaluation. Predominance of monocytes was associated with re-transplantation but not with C4d deposits or PRA-levels. The type of infiltrating immune cells did not depend on age of donors or recipients, duration of cold ischemia or number of mismatches. Evaluating the clinical course after transplantation, we found similar serum creatinine values at time of biopsy and up to 36 months thereafter in both groups. Kaplan-Meier analysis revealed no statistically significant difference in transplant and patient survival between groups and showed only a trend towards less favourable outcomes if monocytes predominated.

Conclusions: In contrast to previous reports we found no general predominance of either T-cells or monocytes in arterial intimal infiltrates. Predominantly monocytic infiltration of the intima was associated with re-transplantation but not with indicators of humoral response and had no clear-cut influence on renal function and graft survival in our still rather small study population.