Pure T-cell-mediated rejection following kidney transplant according to the response to treatment in the era of antibody-mediated rejection

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Background: Currently, we live in an era of antibody-mediated rejection (ABMR), while the effect of T-cell-mediated rejection (TCMR) on graft survival (GS) is gradually decreasing. However, acute pure TCMR is still described in histologic reports even a long time after transplant. The purpose of this study was to evaluate the effect of pure TCMR on GS according to the treatment response. We also performed molecular diagnosis using a molecular microscope diagnostic system (MMDx) to determine the accuracy of the histologic diagnosis of pure TCMR.

Methods: A total of 63 patients were divided into the non-responder group (n=22) and responder group (n=44) according to the response to rejection treatment. Molecular diagnosis and histologic diagnosis were conducted simultaneously on additional 23 patients.

Results: The rejection time since treatment was shorter in the non-responder group than in the responder group. In addition, the cumulative incidence of recurrent rejection after treatment was significantly higher in the non-responder group. The glomerular filtration rate (GFR) at biopsy, Δ GFR (baseline GFR–GFR at biopsy), TCMR within 1 year, t score, and interstitial fibrosis/tubular atrophy score were significant factors associated with the non-responder group. In comparison with the non-responder group, the responder group showed a significantly superior overall GS rate. Molecular assessment using MMDx showed a good correlation with the histologic diagnosis of ABMR but not TCMR.

Conclusions: Our study found that acute pure TCMR was a significant risk factor for graft failure in patients who did not respond to rejection treatment. Molecular analysis using MMDx showed that acute pure TCMR at 1 year after transplant in the histologic report must be interpreted cautiously.

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