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Comparison of microvascular inflammation in renal allograft tissue between ABO incompatible and ABO compatible kidney transplantation

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Objectives : Microvascular inflammation (MVI) is considered as a pathological marker for antibody-mediated rejection (AMR) in the presence of donor-specific antibody (DSA). We aimed to investigate clinical role of MVI as predicting AMR in ABO incompatible kidney transplantation. (ABOi KT)

Methods : A single-center retrospective matched cohort study was conducted. We evaluated histologic parameters in kidney biopsy of 296/75 ABO compatible (ABOc)/ABO incompatible (ABOi) consecutive living donor KT, matched for donor age and transplantation year. In the ABOi group, the desensitization protocol consisted of rituximab, plasmapheresis and immunoglobulins.

Results : Between ABOc and ABOi group, there was no difference in death-censored graft survival, and patient survival. (p-values for each 0.068. and 0.294) The cumulative incidence of acute rejection determined by both protocol biopsy and indication biospies was 19.5% and 23.2% (p=0.515) There was no difference in the incidence of MVI between ABOi KT and ABOc KT. (p=0.284) The incidence of MVI at protocol biopsy on post KT 3 months were not statistically different between ABOi and ABOc group. (p=0.103) High titer of Anti-A/B antibody didn't correlated with the risk of MVI. (p=0.689) When compare ABOi KT to human leukocyte antigen (HLA) sensitized KT, highly-HLA-sensitized group (DSA Luminex MFI >5,000 or Pannel reactive antibody (PRA)>50%) showed tendency of increased rejection rate compared to low-sensitized group, despite of statistically insignificance. (p=0.311) And highly sensitized ABOi group had more frequently incidence of MVI than low-sensitized group (p<0.001).

Conclusions : In contrast to HLA-DSA, ABO incompatibility or anti-A/B antibody titer was not associated with the development of MVI in allograft tissue.

Keywords : ABO-incompatible kidney transplantation, microvascular inflammation