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Post-transplant collagen I and collagen III antibodies and antibody-mediated rejection in kidney transplantation recipients.

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Objectives: We explored the association of HLA and non-HLA antibodies and AMR in kidney transplantation recipients.

Methods: The study included transplant recipients in one of the tertiary hospitals in Korea. We collected post-transplant sera from 72 kidney transplant recipients when biopsies revealing AMR were performed. As a control group without rejection, 82 post-transplant sera from transplant recipients without rejection and as a T-cell mediated rejection control group, 65 sera from patients with T-cell mediated rejection but without AMR were included. The titers of non-HLA antibodies were measured by the Luminex, LABScreen Autoantibody (One Lambda) and reported as mean fluorescence intensity values. We measured the titers of 41 non-HLA antibodies that are potentially associated with AMR.

Results: The baseline characteristics of the AMR group and the control groups were relatively similar, except for that the AMR cases were diagnosed in the later periods from transplantation and had a higher proportion of HLA mismatched cases and cases with positive donor-specific antibody. The titers of collagen I and collagen III antibodies were significantly higher in the AMR cases, both when compared to the no rejection group and the T-cell mediated rejection only group. The titers of collagen I and collagen III antibodies did not differ according to the presence of DSA or other diagnosis within the AMR group. Among the AMR cases, those with higher titers of collagen I or collagen III antibody had more severe degrees of peritubular capillaritis. The presence of high (> 75 percentile) collagen I antibody titer [adjusted odds ratio 8.29 (2.92-25.66)] and collagen III antibody titer [adjusted odds ratio 11.74 (3.86-40.28)] were significantly associated with the odds for AMR.

Conclusions: Post-transplant collagen I and collagen III antibodies may be novel non-HLA antibodies that are related to AMR of kidney allograft.

Figure 1. Measured mean fluorescence intensity titers of the non-HLA antibodies.