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High HLA DQ Epitope-Mismatch loads and tacrolimus lowest level < 6ng/ml in the past 6month are associated with development of de novo DSA

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Objectives: Purpose of our study is to evaluate the clinical significances of HLA class II epitope mismatch loads and tacrolimus level for the development of de novo DSA and graft outcome.

Methods: We examined 178 kidney transplant recipients for the development of de novo DSAs from June 2001 to June 2018. We excluded patients whose data on HLA-DQ matching were missing and HLA class II epitope matching were not available. A nadir FK trough level was collected over 6 months prior to the development of de novo DSA. We compared HLA-DR/DQ epitope mismatch loads and the lowest tacrolimus trough level in the past 6month prior to DSA occurrence for the development of de novo DSA and graft outcome.

Results: 25 of 178 stable KTRs (14.0%) had HLA class II DSAs (10DR-DSA/14DQ-DSA,1 combined DR-and DQ-DSA) on SAB, The median follow-up was a 90.0±5.9 month (range 0-215). Mean HLA mismatch number was 3.5±0.2. Six (3.4%) of 25 de novo HLA class II DSA had biopsy-proven chronic antibody-mediated rejection. Three of 5DQ-DSA positive-patients and one of 1DR-DSA positive patient were lost graft function to CABMR. Not High DR epitope mismatch load(DR epitope mm≥10) but High DQ epitope mismatch loads(DQ epitope mm ≥17) and the lowest FK trough level (<6ng/ml) in the past 6month prior to de novo DSA occurrence are significantly associated with the development of de novo DQ-DSA and poor graft outcome.

Conclusions:

We demonstrated high DQ-epitope mismatch loads and the lowest tacrolimus trough level in the past 6month prior to de novo DSA occurrence are significantly associated with the development of de novo DQ-DSA which subsequently lead to CABMR and graft failure. Our study needs to verify whether intensifying immunosuppression can prevent the development of de novo DSA among patients who have high DQ-epitope mismatch loads