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Histopathological Changes Based on a 12-Month Protocol Biopsy in Kidney Transplant Recipients

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Objectives: Although studies on biomarkers for early detection of allograft dysfunction in kidney transplant recipients (KTRs) are being actively performed, the best method to diagnose the cause of allograft dysfunction is still an allograft biopsy. Recent researches have suggested that protocol biopsy is useful for detection of subclinical allograft pathology.

Methods: We investigate the histopathological changes of a 12-month protocol biopsy in KTRs with stable allograft function at Keimyung University Dongsan Hospital between 2017 and 2021. We analyzed histopathological changes based on a 12-month protocol biopsy in KTRs.

Results: Protocol biopsy was performed in 60 KTRs (31 from living and 29 from deceased donors). The causes of end-stage renal disease were glomerulonephritis (36), hypertension (6), diabetes (13) and polycystic kidney disease (3). Out of 60 biopsies, 25 (41.7%) were considered as nonspecific change, 4 (6.7%), borderline, 4 (6.7%), acute T-cell mediated rejection (TCMR), 3 (5%), chronic active TCMR, 9 (15%), acute antibody-mediated rejection (ABMR), 3 (5%), de novo glomerulopathy/recurrence of primary disease, 1 (1.7%), calcineurin inhibitor toxicity, and 11 (18.3%), interstitial fibrosis and tubular atrophy. There was no significant difference of baseline characteristics according to the results of allograft biopsies. There was also no significant association between the occurrence of donor specific antibody (DSA) and subclinical ABMR. The mean eGFR at the time of the biopsy was 79.3 ± 25.2 mL/min/1.73 m^2, which meant that the most of the findings were subclinical.

Conclusions: In our study, the results of a 12-month protocol biopsy showed various forms. Especially, early recognition and management of allograft pathologies can approach to the further treatment of the KTR. Finally, a large-scale long-term studies are needed.