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Inflammatory Cell Characteristics in Renal Allograft Biopsies with Increased IFTA

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Objectives : Interstitial fibrosis and tubular atrophy (IFTA) are major contributors to graft loss in renal allografts. This study aimed to investigate the inflammatory cell composition in renal allograft biopsies with and without increased IFTA in subsequent biopsies.

Methods : Among 314 renal allograft biopsies performed from March 2019 to December 2020 at Asan Medical Center, we selected 13 renal allograft biopsies with increased IFTA on subsequent biopsies and 15 biopsies without IFTA progression, all from patients who underwent more than two biopsies. Multiplex immunostaining was performed on biopsy specimens for CD68, iNOS, CD206, smooth muscle actin, CD4, and CD8 to analyze the inflammatory cell composition, particularly the M1/M2 macrophage ratio.

Results : Renal allograft biopsies with increased IFTA exhibited significantly higher M2 macrophage ratios in the inflammatory infiltrates compared to biopsies without IFTA progression.

Conclusions : A higher M2 macrophage ratio may facilitate the macrophage-to-myofibroblast transition, serving as a potential prognostic marker for poor outcomes in renal allografts with IFTA