

## DOES PATCHY TUBULAR INJURY REFLECT RENAL ALLOGRAFT DYSFUNCTION IN ACUTE REJECTION?

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### Abstract

Renal allograft specimens often contain patches of injured tubular sections, known as patchy tubular injury (PTI). PTI reflects damage to the proximal tubules, and the histologic findings consist of tubular cell necrosis and tubular regeneration, without tubulitis. Unlike acute tubular necrosis in cadaveric donors, PTI can be observed in kidneys from living donors when there is no history of acute renal failure after transplantation. This study examined the clinicopathological meaning of PTI in acute rejection. Between April 2000 and February 2007, 3,425 renal graft biopsies were performed. PTI was observed in 141 biopsies (4.1%) from 121 living-related kidney transplant recipients. Of these, 67 (47.5%) were accompanied by acute rejection. The diagnosis and severity of rejection were classified using the 2003 Banff criteria. The severity of PTI was graded semiquantitatively as follows: grade 3 > 10 damaged tubular sections, grade 2 > 5, and grade 1 < 5. In PTI with acute rejection, vascular rejection (VR) was seen in 16 cases (v1: 8, v2+3: 7). Tubulointerstitial rejection (TIR) was seen in 30 (t1: 8, t2: 11, t3: 11) and antibody-associated rejection (AMR) was seen in 21 (g0: 5, g1: 13, and g2+3: 3) cases. The mean PTI score was  $1.88 \pm 0.22$  (mean  $\pm$  SEM) in VR,  $1.33 \pm 0.14$  in AMR, and  $1.62 \pm 0.10$  in TIR. The mean serum creatinine (SCr) at the time of biopsy was  $2.76 \pm 1.44$  in VR,  $2.2 \pm 0.9$  in AMR, and  $2.43 \pm 1.3$  in TIR. The mean severity of PTI was greater in VR than in TIR and AMR. Moreover, the mean SCr was highest in VR, and the severity of PTI tended to be similar to the SCr. The severity of PTI was not correlated with the t or g scores. In VR cases, the PTI score was higher in v2+3 cases ( $2.0 \pm 0.31$ ) than in v1 cases ( $1.78 \pm 0.32$ ). These data suggest that PTI is more severe in VR than in TIR or AMR, and the severity of PTI could be a useful histological marker in acute rejection.