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Association of MCP-1 and CCR2 Polymorphism with the Risk of Late Acute Rejection after Renal Transplantation in the Korean Population

Sun Woo Kang[1], Yang Wook Kim[1], Young Hoon Kim[1], Kyung Hwan Jeong[2]
Sang Ho Lee[2], Tae Won Lee[2], Chun Gyoo Lhm[2]

Inje University[1] College of Medicine, Pusan Paik Hospital, Department of Internal Medicine
Department of[2] Nephrology Kyunghee University

Backgound : Among the factors modulating transplant rejection, chemokines and their respective receptors deserve special attention. Increased expression of monocyte chemoattractant protein-1 (MCP-1) and its corresponding receptor (chemokine receptor-2, CCR2) has been implicated in renal transplant rejection. To determine the impact of the MCP-1-2518G and CCR2-64I genotypes on renal allograft function, 167 Korean patients who underwent transplantation over a 25 year period were evaluated.

Methods : Genomic DNA was genotyped using PCR followed by restriction fragment length polymorphism analysis.

Results : Fifty five (32.9%) patients were homozygous for the MCP-1-2518G polymorphism. Nine (5.4%) patients were homozygous for the CCR2-64I polymorphism. None of the investigated polymorphism showed a significant shift in long-term allograft survival. However, a significant increase was noted for the risk of late acute rejection in recipients who were homozygous for the MCP-1 -2518G polymorphism (OR, 2.600; 95% CI, 1.125 to 6.012; p=0.022). There was also an association between the MCP-1 -2518 G/G genotype and the number of late acute rejection episodes (p=0.024). Although there was no difference in the incidence of rejection among recipients stratified by the CCR2- V64I genotype, recipients with the CCR2-64V/64V genotype in combination with the MCP-1-2518 G/G genotype had a significantly higher risk of acute or late acute rejection among the receptor-ligand combinations (p=0.006, p=0.008, respectively).

Conclusion : The MCP-1 variant may be a marker for risk of late acute rejection in Korean patients.