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Research article

CCR2 V64I Genotyping: Impact on end stage renal disease development, progression and renal transplantation outcome

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Abstract

Chemokine receptor 2 (CCR2) may have an impact on end stage renal disease (ESRD) development in children as well as renal allograft survival. **Objective:** Detection of the relevance of the *CCR2 V64I* gene polymorphism to the development and progression of ESRD and its impact on graft rejection in transplanted children. **Methods:** Genotyping for *CCR2 V64I* was done for seventy five children with end-stage renal disease (ESRD) [50 treated with renal transplantation and 25 with hemodialysis] and seventy five healthy children by polymerase chain reaction/restriction fragment length polymorphism (PCR-RFLP) analysis. **Results:** The *CCR2 V64I* displayed significantly higher frequencies among transplantation, hemodialysis, ESRD-patients as well as those with acute rejection when compared with the control subjects (P value <0.001for all).The mutant A allele displayed statistically significant frequencies in all groups when compared with the control group (P value < 0.001). Moreover, carriers of mutant A allele had increased risk of developing both ESRD and acute rejection after transplantation [32.4 times more risk to develop ESRD (OR 32.4; 95% CI 14.1-74.1, P value <0.001) and 5.1 times more risk to suffer acute graft rejection (OR 5.1; 95% CI 1.6-16.1, P value 0.03)]. **Conclusion:** The frequency of the A allele of the *CCR2 V64I* genotypes was significantly higher among children with ESRD & those with acute graft rejection and this allele might be considered a risk marker for pediatric ESRD development as well as a predictor of graft rejection.