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Mycophenolic Acid Absorption Profiles in Patients with Kidney or Combined Pancreas-Kidney Transplantation

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ABSTRACT

Background: Mycophenolate Mofetil (MMF) is widely used in organ transplant patients to avoid calcineurine inhibittor-associated side effects. Therapeutic monitoring of MMF is up to now perform by using trough level measurements (measurements before drug administration). The present study was designed to characterize potential differences in MMF absorption kinetics between patients with allogenic kidney transplantation [kidney Tx] and simultaneous pancreas kidney transplantation [PK Tx], which might for example occur due to diabetic gastrointestinal atony. Methods: A total of 64 pharmacokinetic profiles were prospectively studied in 44 adult kidney Tx and 20 PK Tx patients. To calculate AUC by the trapezoidal rule, mycophenolic acid (MPA) levels were measured in EDTA-plasma by an EMIT assay at 0, 0.5, 1, 2, 3, 4 6, and 12h after oral MMF administration between postoperative day 14 to 28 instable patients. Results: Substantial differences between kidney Tx and PK Tx patients were evident concerning: donor age, recipient age, number of mismatches, and kidney function (serum creatinine). Despite these dissimilarities pharmacokinetic absorption profiles did not significantly differ between patient groups as measured by AUC, C2, maximum MPA concentration (C_{max}), and time until maximum absorption (T_{max}). Astonishingly, concomitant cyclosporine and tacrolimus medication did not influence adsorption profiles. Only MPA concentrations 6h post administration correlated closely with AUC in both patient groups, whereas trough levels failed to be predictive for AUC. Conclusions: In our study population, MMF absorption kinetics did not differ between kidney and PK Tx patients and did not seem influenced by concomitant immunosuppressive medication. Therefore, MPA measurements during the absorption phase could be useful to better estimate AUC in patients with kidney Tx and PK Tx.

KEYWORDS

Mycophenolate Mofetil; Mycophenolic Acid; Pharmacokinetics; Kidney Transplantation; Pancreas-Kidney Transplantation

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