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## Pharmacokinetics of mycophenolic acid during the early period after renal transplant

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## Abstract

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**Objectives:** Mycophenolic acid, the active metabolite of mycophenolate mofetil, is administered with cyclosporine and oral steroids to prevent acute rejection after renal transplant. The aim of this study was to investigate correlations among time after transplant, subjects' demographics, and mycophenolate mofetil dosage according to body weight with mycophenolic acid pharmacokinetics during the early posttransplant period. **Patients and Methods:** Mycophenolic acid plasma levels of 19 patients were determined by a validated high-performance liquid chromatographic method at the steady state soon after transplant when graft function was good (glomerular filtration rate  $\geq 70$  mL/min). All patients received a fixed dosage of mycophenolate mofetil (1 g b.i.d.) in combination with cyclosporine and steroids. The area under the time-concentration curve (AUC) and mycophenolic acid plasma clearance were measured for each patient. **Results.** The AUC from zero to 12 hours and trough levels increased as the time after transplant increased ( $P < .05$ ), but mycophenolic acid plasma clearance decreased over time ( $p = .02$ ). There was a correlation between total body weight and the AUC ( $P = .01$ ,  $r^2 = -0.627$ ) as well as between total body weight and mycophenolic acid clearance ( $P = .04$ ,  $r^2 = 0.555$ ). No statistically significant differences were found regarding mycophenolic acid plasma level, AUC, and mycophenolic acid plasma clearance with regard to sex or age of the subjects ( $P > .05$ ). The mycophenolate mofetil dosage according to body weight correlated positively with the AUC ( $P = .01$ ,  $r^2 = 0.628$ ), but there was a negative correlation between total body weight and mycophenolic acid plasma clearance ( $P = .02$ ,  $r^2 = -0.604$ ). **Conclusions:** Our results demonstrate that total body weight, time after transplant, and mycophenolate mofetil dosage according to body weight affect mycophenolic acid pharmacokinetics. We suggest that mycophenolic acid pharmacokinetics monitoring is necessary to individualize mycophenolate mofetil dosing during the early post-transplant period. Copyright © Ba kent University 2007 Printed in Turkey. All Rights Reserved.

## Reaxys Database Information

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## Author keywords

Drug kinetics; Mycophenolate mofetil; Total body weight

## Indexed Keywords

EMTREE drug terms: cyclosporin; methylprednisolone; mycophenolic acid; mycophenolic acid 2 morpholinoethyl ester; prednisolone

EMTREE medical terms: adult; age; area under the curve; article; blood sampling; body weight; clinical article; controlled study; correlation analysis; diarrhea; drug blood level; drug clearance; drug dose reduction; drug monitoring; female; glomerulus filtration rate; high performance liquid chromatography; human; individualization; kidney failure; kidney function; kidney graft; kidney graft rejection; kidney transplantation; male; patient care; postoperative period; sex difference; steady state; time

MeSH: Adolescent; Adult; Female; Glomerular Filtration Rate; Humans; Immunosuppressive Agents; Kidney; Kidney Transplantation; Male; Middle Aged; Mycophenolic Acid

Medline is the source for the MeSH terms of this document.

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