Effect of CYP3A5 gene polymorphisms on tacrolimus concentration/dosage ratio in adult liver transplant patients

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ABSTRACT. We examined the influence of the cytochrome P450 3A5 (CYP3A5) genes in both donors and recipients on the concentration-dosage ratio (C/D) of tacrolimus in Chinese liver transplant patients. Fifty-one adult liver transplant patients who received tacrolimus were included in this study. The CYP3A5 polymorphism in donors and recipients was determined at the time of transplantation, and tacrolimus-based immunosuppressive therapy was started based on each patient’s genetic constitution. The relationship between the C/D of tacrolimus for 3 months after surgery and the CYP3A5 genotype was analyzed. A stepwise regression model was used to analyze the relationship between C/D of tacrolimus and genotype, time course, age, and liver weight in liver transplant patients. Three months after liver transplantation, C/D was both affected by the CYP3A5 genotype of both the donors and
the recipients. The C/D of tacrolimus in patients with the \textit{CYP3A5*1} allele or carrying \textit{CYP3A5*1} allele in the liver was lower than that in \textit{CYP3A5*3/*3} patients with the \textit{CYP3A5*3/*3} genotype in the liver (P < 0.01). The \textit{CYP3A5*1} genotype in donors as well as in patients both contributes to interindividual variation in the C/D of tacrolimus in adult liver transplantation.

\textbf{Key words:} Cytochrome P450 3A5; Liver transplantation; Tacrolimus; Pharmacogenomics