Conversion to LCP Tacrolimus Mitigates Calcineurin-Induced Nephrotoxicity in Patients After Liver Transplantation

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Abstract

Background: Calcineurin inhibitor (CNI)-induced nephrotoxicity after liver transplantation (LT) is linked to increased morbidity and mortality. LCPT offers a particular extended-release formulation, potentially improving the concentration-dose (C/D) ratio and renal outcomes. This study investigated the impact of switching from standard-release Tacrolimus (SR-Tac) to LCPT on C/D ratio and renal function.

Methods: 170 adult LT recipients (August 2008-March 2020) treated with tacrolimus for at least two years were included. In this single-center, retrospective analysis, 63 patients converted to LCPT, while 107 patients continued on SR-Tac. Clinical data were collected every three months over 24 months.

Results: At baseline, median C/D ratios were similar between groups ($p = 0.553$), the LCPT group showed significantly higher C/D ratios compared to SR-Tac during both the first ($p = 0.003$) and second year ($p = 0.004$). While LCPT-treated patients showed an increased mean estimated glomerular filtration rate (eGFR), the SR-Tac group exhibited a progressive decline at each follow-up (mean decline: -5.4 mL/min/1.73m2 at 24 months, $p<0.001$). Logistic regression identified switch to LCPT ($p<0.001$), female sex ($p = 0.043$), and baseline eGFR ($p = 0.038$) as significant predictors of eGFR change.

Conclusion: Conversion to LCPT may improve renal function in LT recipients over two years, suggesting potential long-term nephroprotection without compromising graft function.