Conversion of Tacrolimus Immediate Release to Tacrolimus Extended Release in Obese Kidney Transplant Recipients

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**Background**: Data describing the safety, efficacy and conversion ratio of tacrolimus immediate release (IR) to LCP-tacrolimus (LCP) in obese patients (BMI > 30) is lacking. We sought to assess the conversion of tacrolimus IR to LCP-tacrolimus in kidney transplant recipients and determine if the standard conversion of 1:0.8 is appropriate.

**Objective**: The objective of this study was to assess the conversion from tacrolimus IR to tacrolimus LCP in obese kidney transplant recipients

**Methods**: This was a retrospective longitudinal cohort study including patients converted to LCP from June 2019 to October 2020 and were followed until November 2021. The primary outcome was conversion ratio based on weight-based dose at a stable therapeutic level, defined as the first level within goal range without a dose change. Other outcomes assessed were tacrolimus coefficient of variation (CV), time in therapeutic range, adverse event rates, infection (BK, CMV), development of donor specific antibodies, and biopsy-proven acute rejection. Categorical data were analyzed with chi square. Continuous variables were assessed using paired t-test and one-way ANOVA.

**Results**: A total of 292 patients were included; 156 and 136 patients with a BMI <30 and BMI >30, respectively. Baseline characteristics were similar, with the exception of pancreas transplant (7.7% vs 2.2%), diabetes (51.9% vs 66.9%), and HLA mismatch (4.3 vs 3.9), respectively. The dosing ratio from tac IR to LCP ranged from 0.73 to 0.77, which differs compared to the package insert recommendation of 0.80; mean LCP dose was similar between BMI cohorts (0.08 vs 0.07 for BMI <30 and BMI > 30, respectively). Overall TITR, defined as percentage of time in therapeutic range for duration of follow up for LCP, was 76% vs 69% for BMI <30 and >30, respectively (p=0.006). In multivariable modeling, BMI was a significant predictor for LCP-tacrolimus dose at steady state; for every 1 kg/m2 increase in BMI, patients needed 0.03 mg/kg less of LCP. Rejection and graft loss were slightly higher in the BMI >30 kg/m2, although not reaching statistical significance.

**Conclusion**: These findings demonstrate that patients with a BMI >30 kg/m2 had slightly lower LCP-tacrolimus mg/kg dosing, which may be due to lower TITR. Further research is needed to assess if high BMI is a risk-factor for reduced tac tolerability.