

Abstract Type : Oral Presentation
Abstract Submission No. : F-003363

Effect of Tacrolimus XL on Variance Coefficients in Comparison with Twice Daily Tacrolimus, and Relationship with Serum Creatinine Concentrations in Kidney Transplant Recipients

Gede Wira Mahadita¹, I Gde Raka Widiana¹, I Made Rama Putra¹, Stefany Adi Wahyuningrum¹

¹Department of Internal Medicine, Faculty of Medicine Udayana University, Indonesia

Introduction: Immunosuppressive therapy aims to prevent allograft rejection and minimize nephrotoxicity and infection. This study aims to determine the variance coefficient of plasma tacrolimus concentrations among kidney transplant recipients.

Methods: A comparative observational analytic with single group cross-over and a cross-sectional design was done at Transplant Out-patient Clinic General Hospital RSUP Prof dr IGNG Ngoerah Denpasar Bali Indonesia March 2019-August 2021. Nineteen kidney transplant recipients were assessed for tacrolimus therapy, blood tacrolimus, and serum creatinine. Tacrolimus treatment has two phases. First period immunosuppressive treatment was divided-dose tacrolimus. Second, tacrolimus XR was used as an immunosuppressant.

Results: There was significant difference between blood tacrolimus coefficient of variance (Co-V) of patients with XR tacrolimus and DD tacrolimus therapy (22.22 7.39% vs 44.3215.54%, $p < 0.001$). There was significant linear correlation between blood tacrolimus Co-V and serum creatinine Co-V in all patients ($r = 0.74$; $rsq = 0.54$; $b = 1.15$; $p < 0.001$). There was only significant linear correlation between blood tacrolimus Co-V in subgroup with DD tacrolimus therapy ($r = 0.58$; $rsq = 0.33$; $p = 0.02$) and none in patients with XR therapy ($r = 0.06$; $rsq = 0.004$; $p = 0.84$). In multivariate analysis with ANCOVA, it was shown that serum creatinine Co-V was associated with Co-V of blood tacrolimus ($B = 0.72$; $rsq = 0.255$; $p = 0.01$). Lower Co-V of tacrolimus and use of XR tacrolimus therapy is associated with lower Co-V of serum creatinine. On the other hand, XR treatment was associated with lower serum creatinine Co-V ($B = -20.7$; $rsq = 0.20$; $p = 0.02$).

Conclusion: XR tacrolimus treatment reduces blood tacrolimus variation in renal transplant recipients. Blood tacrolimus concentrations vary with serum creatinine, especially with divided-dose therapy. XR tacrolimus treatment reduces serum creatinine variation