

## Monitoring tacrolimus blood levels and its clinical application in Indian renal transplant population

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Tacrolimus (TAC), a potent immunosuppressive agent with a narrow therapeutic window with a wide inter and intra individual variation. This requires frequent monitoring of patients blood levels in an attempt to adjust the dose to reach optimal drug concentration with minimum side effects. We conducted a single center retrospective study of 185 renal transplant recipients who were followed at least five years post transplantation. The aim of the study was to analyze the association between TAC trough levels and the graft function.

**Methods:** Tacrolimus blood level in 1110 concentrations from 185 patients was measured by MEIA and CMIA (ABBOTT). All patients were treated with a combination of TAC, Mycophenolate mofetil and Prednisolone. Based on the mean TAC trough levels in the 1<sup>st</sup> month post transplant patients were divided in to three groups. Group A: TAC levels <5 ng/ml, Group B: TAC level 5-15 ng/ml and Group C: TAC level >15 ng/ml. Corresponding serum Creatinine and Creatinine clearance (CrCl) were also measured.

**Results:** Blood levels were sub therapeutic (<5.0ng/ml) in 10 patients (5.4%), safe range (5-15ng/ml) in 102 patients (55.1%) and toxic (>15.0ng/ml) in 73 patients (39.5%) at six months post transplant. Considering post-transplantation period, toxic levels were more frequent until three months after the graft receiving (47.1%) and between three and six months (38.9%), whereas Sub therapeutic levels were less common. Serum Creatinine levels were  $1.72\pm 0.68$ ,  $1.1\pm 0.41$  and  $1.88\pm 0.74$ mg/dl in group A, B and C respectively with corresponding mean CrCl  $42.4\pm 17$ ,  $58.7\pm 11$  and  $44.2\pm 19$  ml/mt in Group A, B, C. In summary we found that in Indian transplant population Tacrolimus blood level of 5-15ng/ml was the safest range to maintain stable graft function and to minimize side effects during first 6 months of kidney transplantation.

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