Conversion from twice-daily to once-daily tacrolimus improves graft function in renal transplant recipients

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Introduction

Tacrolimus extended-release formulation enable once-daily use. Although an increasing number of patients have been converted from twice-daily (Tac-BID) to once-daily (Tac-QD) forumlation, the available information regarding the initiation and follow-up of Tac-QD is sparse. In the present study we investigated influence of switch from Tac-BID or cyclosporine to Tac-QD on renal allograf function, proteinuria and protein-creatinine (P/C) ratio.

Patients and methods

Between October 2012 and October 2014, the switch from Tac-BID or cyclosporine to extended-release formula tacrolimus was done in 129 (38 % female, mean age 49 years) renal transplant recipients at different time after transplantation. The analysis focused on markers of graft function (GFR, serum creatinine, proteinuria, P/C ratio), liver function (AST, ALT, γGT, alkaline phosphatase) and blood glucose. Clinical data were obtained at baseline (before conversion), 1 month (V1), 6 months (V6) and 12 months (V12) after conversion.

Results

Both serum creatinine and GFR showed a statistically significant improvement. With GFR, significant improvement was observed as early as V1 and it continued to increase throughout the study period up to V12 (all between-visit changes were statistically significant). With serum creatinine, mean levels were numerically decreasing throughout the follow-up period, but a significant improvement occurred at V6 and remained significant at V12 (both vs. V0 values). Proteinuria and P/C ratio did not show any significant change through the observation period. In the majority of patients, the baseline values of AST, ALT, GGT, AlP and glucose were within normal limits and did not change significantly through the observation period. Analysis of tacrolimus C0 showed a significant decrease throughout the follow-up period, with practically all visit-visit being significant as well. This finding was paralleled by a significant tacrolimus dose decrease from baseline to V6 and V12, as well as by a significant decrease of tacrolimus dose/body weight.

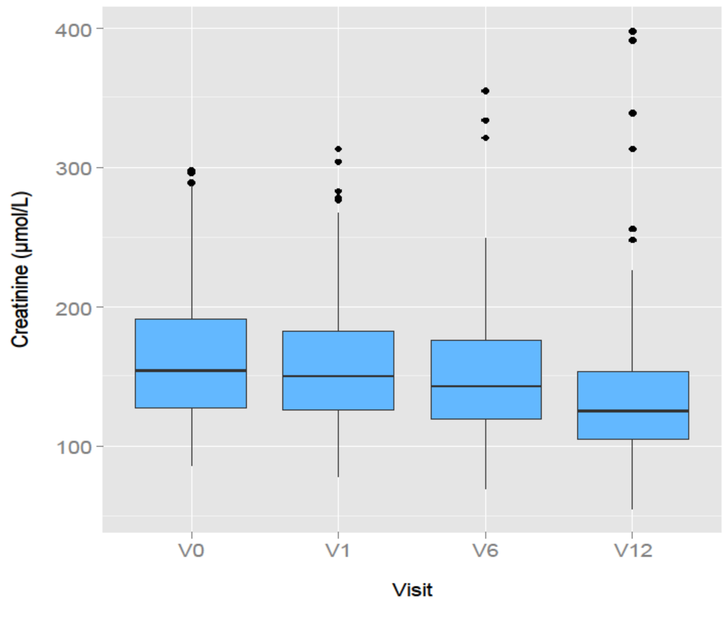

Figure 1. Serum creatinine decreased during the follow-up. Significant differences were observed for V0 vs. V6 ($p < 0.021$), V0 vs. V12 ($p < 0.001$), V1 vs. V12 ($p < 0.001$) and V6 vs. V12 ($p < 0.001$).

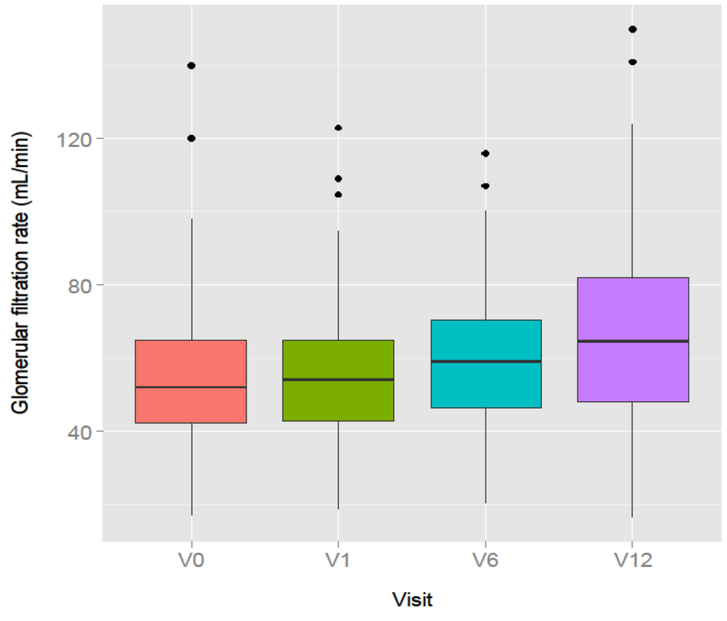

Figure 2. Glomerular filtration rate increased over the observed period.

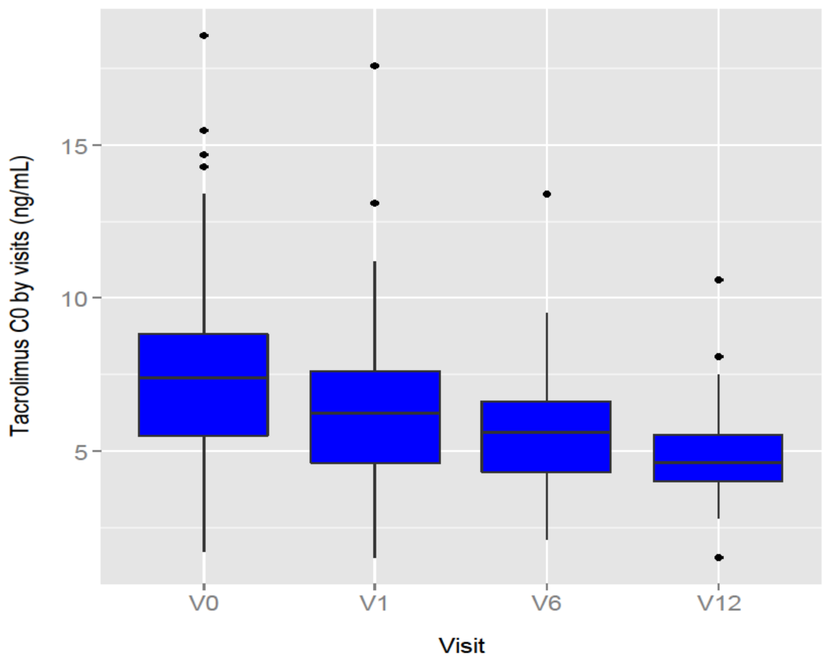

Figure 3. Tacrolimus C0 trough level decreased throughout the follow-up period.

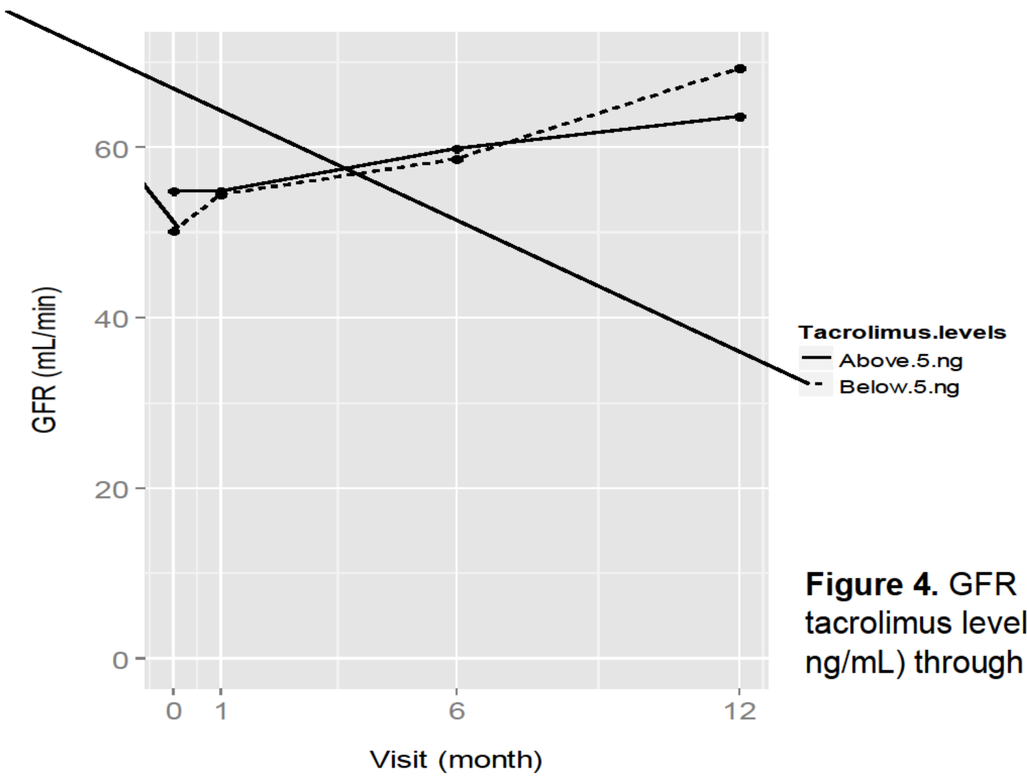

Figure 4. GFR means grouped by tacrolimus levels (> 5 ng/mL, ≤ 5 ng/mL) through the follow-up period

Conclusion

Switch from Tac-BID or cyclosporine to Tac-QD is safe and may improve renal allograft function.

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