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# Once daily tacrolimus lowers intra-individual variability in blood glucose in kidney transplantation

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**Objectives:** Extended release of tacrolimus leads to reduced intra-patients variability of blood tacrolimus level and better drug compliance. Although tacrolimus is known well to cause diabetes kidney transplantation (KT), it is still not clear whether tacrolimus affect variability of blood glucose level. We determined the effect of conversion from twice-daily to once-daily tacrolimus on blood glucose level in patients with KT.

**Methods:** Fifty-nine KT patients (32 men, aged 52.9 ± 10.9 years) were retrospectively enrolled. Fifteen patients had underlying diabetes, and 13 out of 44 non-diabetes developed new onset diabetes after transplantation. Variability of fasting blood glucose, HbA1c, and blood tacrolimus levels for 1 year before and after conversion were compared.

**Results:** Percent of coefficient variance of fasting blood glucose significantly decreased after conversion (17.0 ± 14.3 vs. 13.9 ± 11.0, P=0.028). The difference was also clear in patients with underlying diabetes (28.2 ± 18.0 vs. 21.4 ± 11.9, P=0.047). Percent of coefficient variance of HbA1c was also significantly decreased after conversion in patients with underlying diabetes and NODAT (8.13 ± 5.74 vs. 5.15 ± 2.49, P=0.025). Percent of coefficient variance of blood tacrolimus levels was not different in 59 patients (30.5 ± 12.7 vs. 27.8 ± 10.5, p=0.024), but significantly decreased in patients with diabetes and NODAT (34.9 ± 13.6 vs. 25.9 ± 0.8, P=0.017). Various clinical parameters at the time of conversion were not different compared to the levels 1 year after conversion: Cr 1.29 ± 0.39 vs. 1.34 ± 0.44; hemoglobin, 14.0 ± 11.7 vs. 13.3 ± 1.99; WBC 6571 ± 2107 vs. 6976 ± 1911.

**Conclusions:** Once-daily tacrolimus lowers intrapatient variability in blood glucose levels.