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**Triglyceride-Glucose Index And Risk Of Cardiovascular Events, Renal Allograft Loss, And New Onset Diabetes After Transplantation In Renal Transplant Recipients**

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**Objectives :** Insulin resistance is prevalent disorder, but its clinical significance remains undetermined in renal transplant recipients. We explored the clinical implication of triglyceride-glucose (TyG) index in renal transplant recipients, recognizing it as a valuable marker for insulin resistance.

**Methods :** A total of 6,354 renal transplant recipients were enrolled from a nationwide, prospective cohort between May 2014 and December 2022. The TyG index was assessed between 6- and 12-months post-transplantation. We evaluated the association between TyG index and the risk of composite of cardiovascular events and death, renal allograft loss, and new onset diabetes after transplantation (NODAT).

**Results :** During the mean follow-up period of  $39.2 \pm 26.1$  months, a total of 106 composite events of cardiovascular events and death, 174 events of renal allograft loss, and 438 events of NODAT were observed. The cumulative rate for composite of cardiovascular events and death, graft loss, and NODAT was greater in patients with higher TyG quartile (all  $P < 0.001$ ). In multivariate analysis, patients in quartile 4 of TyG index were associated with an increased risk of composite events (HR 1.81, 95% CI 1.14 – 2.86), renal allograft loss (HR 2.13, 95% CI 1.28 – 3.55), and NODAT (HR 2.52, 95% CI 1.90 – 3.34) compared to those in quartile 1. Patients in quartile 4 were associated with excess decline of renal function (adjusted mean eGFR differences at 5-year post-transplant  $-4.72$ , 95% CI  $-7.39$  –  $-2.04$ ). There was a linear escalation in the risk of composite events and graft loss with the incremental rise in the TyG index, concomitant with an exponential augmentation in the risk of NODAT.

**Conclusions :** Renal transplant recipients with higher TyG index are associated with greater risk of composite of cardiovascular event and death, renal allograft loss, and NODAT.