



## Oral Communication Abstract

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### **Association the Triglyceride-glucose (TyG) index and Coronary Artery Calcification Progression in Non-Diabetic Chronic Kidney Disease**

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**Objectives:** Patients with chronic kidney disease (CKD), the likelihood of complications of cardiovascular disease (CVD) may increase compared to general population. Quantity of coronary artery calcification (CAC) correlates with atherosclerotic plaque burden and increased quantity of CAC indicates a substantially increased cardiovascular events. In previous studies, the TyG index has been reported to associated with coronary artery calcification aggravation. We investigated whether the TyG index was related to coronary artery calcification aggravation in patients with mild renal insufficiency.

**Methods:** This retrospective longitudinal study included adult participants who voluntarily underwent at least two cardiac CT examination at the single center, between January 2006 and October 2018 (n=1,516). The TyG index was determined using  $\ln(\text{fasting triglycerides [mg/dL]} \times \text{fasting glucose [mg/dL]}/2)$ . Mean arterial blood pressure (MAP) was calculated as  $(\text{SBP} + 2 \times \text{DBP})/3$ . Mild renal insufficiency CKD was defined as  $60 \leq \text{eGFR} \leq 90 \text{ ml/min/1.73m}^2$  by the Chronic Kidney Disease Epidemiology Collaboration equation (mild-CKD group). CAC aggravation was defined as an increased coronary artery calcification score (CACS) in the in the follow-up period. To calculate the odds ratio for incident CKD, logistic regression analyses were performed.

**Results:** 1,516 patients were enrolled, of which 746 were in the mild-CKD group without diabetes. The CACS aggravation was significantly higher in participants with a tyG index of 8.9 or higher [OR 1.705 (1.351-2.152), P-value <0.001]. After adjusting for age, sex, MAP, Hemoglobin, Ca X P, potassium associated with increased risk of CAC in participants with mild renal insufficiency [OR 1.534 (1.058-2.224), P=0.027].

**Conclusions:** Among mild CKD without diabetes, TyG index of 8.9 or higher had a positive correlation with CAC progression.

Table 1. Risk of CACS aggravation according to TyG index in mild CKD group without Diabetes

**Table 1.** Risk of CACS aggravation according to TyG index in mild CKD group without Diabetes

	Model 1	Model 2	Model 3
<b>TyG index*</b>			
<b>OR (95% CI)</b>	1.705[1.351-2.152]	1.490[1.056-2.103]	1.534[1.058-2.224]
<b>P</b>	<0.001	0.023	0.027

*Note:* Model 1: Unadjusted model

Model 2: Adjusted for age, sex

Model 3: Adjusted for age, sex, MAP, Hemoglobin, Ca X P, potassium,

*Abbreviations:* OR, odds ratio; CI, confidence interval; MAP, mean arterial blood pressure

\*TyG index  $\geq$  8.9