中文題目：非胰島素測量下的胰島素抗性指數，對慢性腎病第一至四期病人死亡及腎功能的預測

英文題目：Non-insulin-based insulin resistance indices for predicting all-cause mortality and renal outcome in chronic kidney disease stage 1-4 patients

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Background: Insulin resistance (IR) is the key to metabolic syndrome (MetS) and contributes to renal function deterioration and cardiovascular diseases. Alternative measurements for IR, including insulin-based and non-insulin-based methods, were proposed due to limited use of hyperinsulinemic euglycemic clamp in clinical practice. Non-insulin-based method is used in diabetes patients to predict the development of chronic kidney disease (CKD). Recently, we demonstrated the obesity paradox, a U-shaped association between body mass index (BMI) and clinical outcomes, in the CKD population. Thus, whether non-insulin-based IR indices are associated with all-cause mortality and renal outcome in the CKD population is not clear.

Methods: We conducted a cohort study including 2457 Asians to investigate the association between non-insulin-based IR indices (including triglyceride glucose (TyG) index, TyG-BMI index, triglyceride to high-density lipoprotein cholesterol ratio (TG/HDL ratio) and metabolic score for IR (METS-IR)) with all-cause mortality and renal outcome. The model was adjusted for age, gender, eGFR (estimated glomerular filtration rate), Upcr (Urine protein and creatinine ratio) log, cardiovascular disease, smoker, cancer, severe liver disease, hypertension, hemoglobin, BMI, cholesterol log, glycosylated hemoglobin, albumin, CRP (C-reactive protein) ln and phosphorus.

Results: In the fully-adjusted Cox regression model, a U-shape association between TyG index and renal outcome was found: HRs (95% confidence interval) of TyG Q1, Q2 and Q4 were 1.44 (1.13–1.84), 1.57 (1.26–1.95) and 1.38 (1.12–1.70). Meanwhile, a reverse association between TyG-BMI index and renal outcome was found: HRs of TyG-BMI index Q1 and Q2 were 1.86 (1.19–2.91) and 1.57 (1.10–2.23). There was no significant association between TG/HDL-c ratio, METS-IR and renal outcome. In contrast, a reverse association between TyG Q1 [HR: 1.38 (1.08–1.76)], TyG-BMI Q1 [HR: 1.87(1.11–3.14)] and all-cause mortality was noticed. There was no significant association between TG/HDL-c ratio and METS-IR with all-cause mortality.

Conclusion: We concluded that there was IR indices paradox for clinical outcomes: Low TyG index and low TyG-BMI index were associated with worse clinical outcomes. Only high TyG index was associated with renal outcome among these parameters.