

中文題目：在慢性腎臟病，糖尿病和心臟超音波 E/Ea 與心血管事件的關聯性

英文題目：Association of Type 2 Diabetes Mellitus and Ratio of Transmitral E Wave Velocity to Early Diastole Mitral Velocity with Cardiovascular Events in Chronic Kidney Disease

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Background:

Patients with chronic kidney disease (CKD) are known to have high rates of type 2 diabetes mellitus (DM) and left ventricular diastolic dysfunction, however the association between DM and left ventricular diastolic dysfunction with cardiovascular outcomes in patients with CKD is unclear. The aim of this study was to assess whether a combination of the presence of DM and the ratio of peak early transmitral filling wave velocity (E) to early diastolic velocity of lateral mitral annulus (Ea) is independently associated with cardiovascular events in patients with CKD stages 3–5.

Materials and Methods:

We enrolled 356 patients with CKD from our outpatient department who received echocardiographic examinations, and classified them into four groups according to the presence of DM and $E/Ea \leq$ or > 9 . Cardiovascular events were defined as cardiovascular death, hospitalization for unstable angina, congestive heart failure or nonfatal myocardial infarction, sustained ventricular arrhythmia, transient ischemic attack, and stroke. The relative risks of cardiovascular events were analyzed using Cox regression analysis.

Results:

A combination of the presence of DM and $E/Ea > 9$ (vs. a combination of no DM and $E/Ea \leq 9$) was significantly associated with cardiovascular events in an unadjusted model (hazard ratio [HR], 6.990; 95% confidence interval [CI], 2.753 to 17.744; $p < 0.001$), and in a multivariable model after adjusting for demographic, clinical and biochemical characteristics (HR, 3.037; 95% CI, 2.088 to 7.177; $p = 0.025$). In the patients without DM, the E/Ea ratio ($p = 0.033$) improved the prediction of cardiovascular events, compared to the E/Ea ratio ($p = 0.018$), left atrial diameter ($p = 0.033$) and left ventricular mass index ($p = 0.001$) in the patients with DM.

Conclusion:

The combination of the presence of DM and left ventricular diastolic dysfunction was associated with adverse cardiovascular events in patients with CKD stages 3–5. Assessments of DM status and E/Ea ratio may help identify a group of patients at high-risk of poor cardiovascular outcomes.