中文題目：以斑點追蹤心臟超音波評估心房顫動病患：早期二尖瓣流入速度與全心舒張形變的比率與快速腎功能下降有關

英文題目：Association of the Ratio of Early Mitral Inflow Velocity to the Global Diastolic Strain Rate with a Rapid Renal Function Decline in Atrial Fibrillation

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Background: The ratio of early mitral inflow velocity (E) to the global diastolic strain rate (E'sr) has been correlated with left ventricular filling pressure and predicts adverse cardiac outcomes in atrial fibrillation (AF). The relationship between the E/E'sr ratio and renal outcomes in AF has not been evaluated. This study examined the ability of the E/E'sr ratio in predicting progression to the renal endpoint, which is defined as a ≥ 25% decline in the estimated glomerular filtration rate in patients with AF.

Materials and Methods: Comprehensive echocardiography was performed on 149 patients with persistent AF, and E'sr was assessed from three standard apical views using the index beat method.

Results: During a median follow-up period of 2.3 years, 63 patients (42.3%) were reaching the renal endpoint. Multivariate analysis showed that an increased E/E'sr ratio (per 10 cm) (hazard ratio, 1.230; 95% confidence interval, 1.088 to 1.391; p = 0.001) was associated with an increased renal endpoint. In a direct comparison, the E/E'sr ratio outperformed the ratio of E to early diastolic mitral annular velocity (E') in predicting progression to the renal endpoint in both univariate and multivariate models ($p \leq 0.039$). Moreover, adding the E/E'sr ratio to a clinical model and echocardiographic parameters provided an additional benefit in the prediction of progression to the renal endpoint ($p = 0.006$).

Conclusions: The E/E'sr ratio is a useful parameter and is stronger than the E/E' ratio in predicting the progression to the renal endpoint, and it may offer an additional prognostic benefit over conventional clinical and echocardiographic parameters in patients with AF.

Key words: Strain rate, Atrial fibrillation, Renal function decline, Left ventricular diastolic function