Abstract: P620

The prognostic value of the ratio of transmitial early filling velocity to early diastolic strain rate in type 1 diabetes patients

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Topic(s):
Tissue Doppler, Speckle Tracking and Strain Imaging

Citation:
Background: Cardiovascular disease is one of the main causes of morbidity and mortality in patients suffering from type 1 diabetes mellitus. It is of great importance to identify early signs of cardiac pathology such as elevated left ventricular (LV) filling pressure. The ratio of transmitial early filling velocity to early diastolic strain rate (E/e'sr) has in recent studies proved to be an accurate measure of left ventricular (LV) filling pressure. Furthermore, E/e’sr has demonstrated strong prognostic value across different study populations.

Purpose: The aim of this study was to assess the prognostic value of E/e’sr in a large cohort of patients with type 1 diabetes mellitus in relation to cardiovascular morbidity and mortality.

Methods: In this prospective study, 1082 patients with type 1 diabetes mellitus (mean age 50 ± 15 years, 53% male, mean duration of diabetes 26 years) underwent a comprehensive echocardiographic examination including both conventional measurements and two-dimensional speckle tracking in which E/e’sr along with other echocardiographic measurements were obtained. The primary outcome was defined as a major cardiac event (heart failure, stroke, myocardial infarction or cardiovascular death).

Results: During follow-up (median: 6.2 years, IQR: 5.7, 6.9) 144 (13.3%) met the composite outcome. E/e’sr was significantly associated with the composite outcome (E/e’sr: HR 1.36 95%CI [1.25-1.47], p<0.001, per 0.10m increase) (figure). E/e’sr remained an independent predictor after multivariable adjustment for age, gender, duration of diabetes, BMI, HbA1c, smoking status, level of physical activity, systolic blood pressure, cholesterol level, eGFR, albuminuria, LV ejection fraction, LV dimensions and left atrial volume index (E/e’sr: HR 1.16 95%CI [1.04-1.28], p=0.006, per 0.10m increase). Interestingly, E/e’sr was especially good as a prognosticator in female patients (p for interaction = 0.008) (female: HR 1.53 95%CI [1.37-1.71], p<0.001, per 0.10m increase) vs (male: HR 1.23 95%CI [1.10-1.38], p<0.001, per 0.10m increase). In the same multivariable model as before, E/e’sr remained an independent predictor of the outcome in female patients whereas the same was not true for male patients (female: HR 1.39 95%CI [1.18-1.66], p<0.001, per 0.10m increase) vs (male: HR 1.05 95%CI [0.92-1.21], p=0.46, per 0.10m increase).

Conclusion: In patients with type 1 diabetes, E/e’sr provides independent prognostic information regarding cardiovascular morbidity and mortality. Furthermore, E/e’sr seems to have stronger prognostic value in female patients with type 1 diabetes.
Abstract: P620
The prognostic value of the ratio of transmitral early filling velocity to early diastolic strain rate in type 1 diabetes patients

Authors: M H Lassen 1, TBS Biering-Sørensen 1, PGJ Joergensen 1, HUA Andersen 2, PR Rossing 2, MTJ Jensen 1, 1 Gentofte University Hospital, Cardiology - Copenhagen - Denmark, 2 Steno Diabetes Center Copenhagen - Copenhagen - Denmark,

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Number of events

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