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Correlation between Left Ventricular Hypertrophy with Strain Pattern Electrocardiography and Left Ventricular Diastolic Dysfunction in Hypertensive Heart Disease

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Abstract : Background : Left ventricular hypertrophy ECG with 'strain' pattern will show indirectly structural and functional change in hypertensive patients, this process leads to diastolic dysfunction that eventually will be heart failure, this study aims to seek a correlation between ECG with 'strain' pattern with diastolic dysfunction in echocardiography examination in patients with hypertensive heart disease.

Method : This is a cross-sectional study involving 80 patients diagnosed with hypertension in Haji Adam Malik General Hospital Medan from Mei 2018 to August 2018. Chi-Square test will be performed to analyze correlation between ECG with 'strain' pattern with diastolic dysfunction in patients with normal ejection fraction according to *ASE 2016 guidelines* in hypertensive heart disease patients.

Result : From 80 subjects, 12 (80%) subjects with 'strain' pattern ECG have diastolic dysfunction ($p=0.001$). subjects with history of smoker and diabetes mellitus has significant correlation to diastolic dysfunction ($p=0,049$ & $p=0,047$). LAD axis, e' septal value, LAVi, TR velocity values has also significant correlation to diastolic dysfunction in hypertensive heart disease patient ($p<0.05$).

Conclusion : Left ventricular hypertrophy ECG with 'strain' pattern has correlation with diastolic dysfunction in echocardiography performed in patients with hypertensive heart disease. Smokers and diabetes mellitus patients also correlated with diastolic dysfunction in hypertensive heart disease patient.

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