

# 学位論文審査結果の要旨

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<p>(学位論文審査結果の要旨)</p> <p>Quantifying longitudinal right ventricular dysfunction in patients with old myocardial infarction by using speckle-tracking strain echocardiography</p> <p>【主論文審査結果の要旨】</p> <p>著者らは論文において下記の内容を述べている。</p> <p>BACKGROUND:</p> <p>We investigated longitudinal right ventricular (RV) function assessed using speckle-tracking strain echocardiography in patient with myocardial infarction (MI), and identified the contributing factors for RV dysfunction.</p> <p>METHODS:</p> <p>We retrospectively studied 71 patients with old MI (the OMI group) and 45 normal subjects (the Control group) who underwent a transthoracic echocardiography. Global and free wall RV peak systolic strains (PSSs) in the longitudinal direction were measured by using speckle-tracking strain echocardiography. Left ventricular (LV) PSSs were measured in the longitudinal, radial and circumferential directions. Cardiac hemodynamics including peak systolic pulmonary artery pressure was also assessed non-invasively. Plasma brain natriuretic peptide (BNP) levels were measured in all patients.</p> <p>RESULTS:</p> <p>In the OMI group, 73% of the patients had a normal estimated peak systolic pulmonary artery pressure of less than 35 mmHg. Global and free wall RV PSS</p>			

were impaired in the OMI group compared with the Control group, and these RV systolic indices were significantly associated with heart rate, logarithmic transformed plasma BNP, greater than 1 year after onset of MI, Doppler-derived estimated pulmonary vascular resistance, LV systolic indices, LV mass index, infarcted segments within a territory of the left circumflex artery and residual total occlusion in the culprit right coronary artery. Multivariable linear regression analysis indicated that reduced longitudinal LV PSS in the 4-chamber view and BNP levels  $\geq 500$  pg/ml were independently associated with reduced global and free wall RV PSS. Moreover, when patients were divided into 3 groups according to plasma BNP levels (BNP  $< 100$  pg/ml;  $n = 31$ ,  $100 \leq \text{BNP} < 500$  pg/ml;  $n = 24$ , and BNP  $\geq 500$  pg/ml;  $n = 16$ ), only patients with BNP  $\geq 500$  pg/ml had a strong correlation between RV PSS and longitudinal LV PSS in the 4-chamber view ( $r = 0.78$  for global RV PSS and  $r = 0.71$  for free wall RV PSS,  $p < 0.05$ ).

#### CONCLUSION:

Longitudinal RV systolic strain depends significantly on longitudinal LV systolic strain especially in patients with high plasma BNP levels, but not on estimated peak systolic pulmonary artery pressure. These results indicate that process of RV myocardial dysfunction following MI may be governed by neurohormonal activation which causing ventricular remodeling rather than increased RV afterload.

本研究において小西は、陳旧性心筋梗塞患者の右室長軸機能が、右室後負荷の増大ではなく、左室長軸機能低下および血清 BNP 値の上昇に強く依存して低下することを示した。よって本論文は、心筋梗塞後の心病態を理解するうえで学術上極めて有益であり、学位論文として価値あるものと認めた。

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