

# 学位論文の要旨

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主論文の題名			
Associating the Severity of Emphysema with Coronary Flow Reserve and Left Atrial Conduit Function for the Emphysema Patients with Known or Suspected Coronary Artery Disease			
主論文の要旨			
<p>Purpose: Pulmonary emphysema may associate with ischemic heart disease through systemic microvascular abnormality as a common pathway. Stress cardiovascular MR (CMR) allows for the assessment of global coronary flow reserve (CFR). The purpose of this study was to evaluate the association between the emphysema severity and the multiple MRI parameters in the emphysema patients with known or suspected coronary artery disease (CAD).</p> <p>Methods: A total of 210 patients with known or suspected CAD who underwent both 3.0T CMR including cine CMR, stress and rest perfusion CMR, stress and rest phase-contrast (PC) cine CMR of coronary sinus, and late gadolinium enhancement (LGE) CMR, and lung CT within 6 months were studied. Global CFR, volumes and functions of both ventricles and atria, and presence or absence of myocardial ischemia and infarction were evaluated. Emphysema severity was visually determined on lung CT by Goddard method.</p> <p>Result: Seventy nine (<math>71.0 \pm 7.9</math> years, 75 male) of 210 patients with known or suspected CAD had emphysema on lung CT. Goddard score was significantly correlated with CFR (<math>r = -0.246</math>, <math>P = 0.029</math>), left ventricular end-diastolic volume index (LV EDVI) (<math>r = -0.230</math>, <math>P = 0.041</math>), right ventricular systolic volume index (RV SVI) (<math>r = -0.280</math>, <math>P = 0.012</math>), left atrial (LA) total emptying volume index (<math>r = -0.269</math>, <math>P = 0.017</math>), LA passive emptying volume index (<math>r = -0.309</math>, <math>P = 0.006</math>), LA systolic strain (<math>E_s</math>) (<math>r = -0.244</math>, <math>P = 0.030</math>), and LA conduit strain (<math>E_e</math>) (<math>r = -0.285</math>, <math>P = 0.011</math>) in the patients with emphysema. Multiple linear regression analysis revealed LA conduit function was independently associated with emphysema severity as determined by Goddard method (<math>\beta = -0.361</math>, <math>P = 0.006</math>).</p> <p>Conclusion: LA conduit function independently associates with emphysema severity in the emphysema patients with known or suspected CAD after adjusting age, sex, smoking, and the</p>			

CMR indexes including CFR. These findings suggest that impairment of LA function predominantly occurs prior to the reduction of the CFR in the emphysema patients with known or suspected CAD.