

# 論 文 内 容 要 旨

Effects of aging on coronary flow reserve in patients with  
no evidence of myocardial perfusion abnormality.

(加齢が Coronary Flow Reserve に与える影響)

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Coronary flow reserve (CFR) reflects the functional capacity of microcirculation to adapt to blood demand during increased cardiac work. We tested the hypothesis that aging had impacts on coronary flow velocities and CFR in patients with no evidence of myocardial perfusion abnormality on single photon emission computed tomography (SPECT). Seventy-six patients undergoing transthoracic Doppler echocardiography with no evidence of myocardial perfusion abnormality on SPECT were enrolled in this study. CFR was defined as the ratio of hyperemic to resting peak diastolic coronary flow velocity.

Patients were divided into the three groups based on age: 17 patients aged less than 70 years (Group I), 38 patients aged 70 - 79 years (Group II), and 21 patients aged 80 years or more (Group III). Compared with Group I, CFR was significantly lower in Group II ( $p < 0.01$ ) and Group III ( $p < 0.01$ ). Multivariate analysis showed that female ( $\beta = -0.26$ ,  $p = 0.03$ ), cigarette smoking ( $\beta = -0.32$ ,  $p = 0.004$ ), hemoglobin level ( $\beta = -0.40$ ,  $p = 0.001$ ) and LV mass index ( $\beta = 0.24$ ,  $p = 0.03$ ) were determinants for resting coronary flow velocity. On the other hand, age ( $\beta = -0.30$ ,  $p = 0.008$ ), hemoglobin level ( $\beta = -0.47$ ,  $p < 0.001$ ) and LV mass index ( $\beta = 0.24$ ,  $p = 0.04$ ) were determinants for hyperemic coronary flow velocity. Age was only independent determinant for CFR ( $\beta = -0.48$ ,  $p < 0.001$ ).

Our data suggested that aging impaired CFR in patients with no evidence of myocardial perfusion abnormality primarily due to the decrease in hyperemic coronary flow velocity.