

## Diagnostic feasibility of resting full-cycle ratio between systole and diastole to assess functional lesion severity of intermediate coronary artery stenosis

H. Takashima, H. Ohashi, H. Ando, S. Sakurai, Y. Nakano, A. Suzuki, H. Sawada, M. Fujimoto, K. Waseda, T. Amano

*Aichi Medical University, Nagakute, Japan*

**Funding Acknowledgement:** Type of funding source: None

**Background:** Recently, non-hyperemic physiologic indices have become widespread for evaluating physiological lesion assessment. The resting full-cycle ratio (RFR) is a unique non-hyperemic index which is calculated as the point of absolutely lowest distal pressure to aortic pressure during entire cardiac cycle. It is unclear whether RFR may detect functionally significant coronary stenosis that cannot be detected with other resting indices due to differences in the cardiac cycle. The aim of this study is to compare the diagnostic performance of RFR based on cardiac cycle.

**Method:** This study was a prospectively enrolled observational study. A total of 156 consecutive patients with 220 intermediate lesions were enrolled in this study. The RFR was measured after adequately waiting for stable condition, while FFR was measured after intravenous administration of ATP (180mcg/kg/min). Lesions with  $FFR \leq 0.80$  were considered functionally significant coronary artery stenosis.

**Results:** In all lesions, reference diameter, diameter stenosis, le-

sion length, RFR, and FFR were  $3.0 \pm 0.7$ mm,  $45 \pm 13\%$ ,  $13.0 \pm 8.8$ mm,  $0.90 \pm 0.09$ , and  $0.82 \pm 0.10$ , respectively. Functional significance was observed in 88 lesions (40%) of all lesions. RFR systole was observed in 24 lesions (10.9%). Regarding to the coronary lesions, RFR systole was more frequent in non-LAD (LAD; 4.2%, left circumflex artery (LCX); 9.8%, and right coronary artery (RCA); 30.4%, respectively,  $p < 0.018$ ). RFR showed a significant correlation with FFR in both systole and diastole ( $R = 0.918$ ,  $p < 0.001$ ,  $R = 0.733$ ,  $p < 0.001$ , respectively). The ROC curve analysis showed similar agreement in both systole and diastole (AUC: 0.881,  $p < 0.001$ , AUC: 0.864,  $p < 0.001$ , respectively). RFR provided a good diagnostic accuracy and no difference in both systole and diastole (79.6% and 87.5%, respectively,  $p = 0.58$ ).

**Conclusion:** RFR is feasible and reliable non-hyperemic index regardless of the difference of cardiac cycle to evaluate physiological lesion severity in daily practice.