CORRELATION BETWEEN FRACTIONAL FLOW RESERVE AND QUANTITATIVE CORONARY ANGIOGRAPHY PARAMETERS IN INTERMEDIATE CORONARY ARTERY STENOSIS

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Objectives To clarify the relationship between quantitative coronary angiography (QCA) parameters and fractional flow reserve (FFR) for screening out ideal angiographic parameters to predict myocardial ischaemia.

Methods The study included 121 lesions with QCA and FFR data from 106 patients. The lesions were grouped into FFR>0.75 group and FFR≤0.75 group. Assessed parameters by QCA included percentage diameter stenosis, minimum luminal diameter (MLD), percentage area stenosis, minimum luminal area (MLA), reference vessel diameter (RVD) and lesion length (LL). Correlation analysis was used to identify the relationship between QCA parameters and FFR value, and receiver operating characteristic (ROC) curve was used to determine predictors of FFR≤0.75.

Results When compared to FFR>0.75 group, FFR≤0.75 group had higher LL (14.8±7.9 mm vs 10.7±5.4 mm, \( p = 0.024 \)), lower MLD (1.47±0.31 mm vs 1.82±0.51 mm, \( p = 0.028 \)), lower RVD (2.30±0.50 mm vs 2.81±0.64 mm, \( p = 0.036 \)), and lower MLA (2.30±1.50 mm\(^2\) vs 3.60±2.30 mm\(^2\), \( p = 0.038 \)). By correlation analysis, significant negative correlation between QCA parameters and FFR included LL (\( r = -0.209, p = 0.040 \)), significant positive correlation included MLD (\( r = 0.414, p = 0.040 \)), RVD (\( r = 0.303, p = 0.000 \)) and MLA (\( r = 0.315, p = 0.002 \)). By using a ROC, we identified MLD≥1.6 mm to be the best cut-off value to fit with a FFR>0.75 with sensitivity 63%, specificity 82%, and positive predictive value 96%.

Conclusions Anatomic parameters of intermediate coronary lesions by QCA show a moderate correlation to FFR value. MLD by QCA may be used as an alternative to FFR when assessing the need for intervention in intermediate coronary lesions.