Comparing Diagnostic Accuracy of Resting Full-Cycle Ratio and Fractional Flow Reserve in The Assessment of Intermediate Grade Coronary Lesion: A Real-Clinical Experience

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ABSTRACT

OBJECTIVE:

This study compares the diagnostic accuracy of resting full-cycle ratio (RFR), a recent non-hyperemic pressure index with the standard fractional flow reserve (FFR).

METHODS AND RESULTS:

This retrospective, observational study included 180 patients presented to Royal Albert Edward Infirmary either for elective or urgent coronary intervention for stable angina or acute coronary syndrome (>48 h) with intermediate-grade lesions (typically around 40-90% stenosis). All patients underwent assessment of RFR and FFR, that was followed by evaluation of the correlation between both indices and assessment of the diagnostic adequacy of RFR against FFR ≤ 0.80.

A total of 253 pressure wire studies were included for analysis. A significant correlation between RFR and FFR values was observed with a correlation coefficient (r value) of 0.68 (p values < 0.001). Using receiver operating characteristic (ROC) curves (area under the curve for RFR 0.91), and the best cut-off value for RFR was ≤0.89, for an FFR ≤0.80. The overall diagnostic accuracy of RFR compared to FFR were nearly identical (RFR: 84.3%, p=0.486). The sensitivity of RFR against FFR was 77.2%.

CONCLUSION:

RFR has a good correlation with FFR, therefore a good diagnostic performance for detecting the functional significance of coronary stenosis. However, further investigations are still needed.

KEYWORDS:

Coronary artery disease; Percutaneous coronary intervention; Hemodynamic assessment of coronary stenosis

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