Functional Coronary Angiography Versus Wire-Based Fractional Flow Reserve for the Assessment of Intermediate Coronary Artery Lesions

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Background:Wire-based fractional flow reserve (WB-FFR) is recommended for assessing the functional relevance of intermediate coronary stenosis. Functional coronary angiography (FCA-FFR) has emerged as a computational method that estimates FFR based on coronary angiographic images. The aim of this study was to compare the 12 month clinical outcomes between patients assessed using FCA-FFR and those assessed using WB-FFR.Methods:Between January 1, 2023, and May 31, 2024, 169 patients with chronic coronary syndrome or stabilized acute coronary syndrome were retrospectively included. All patients underwent either FCA-FFR (n = 84, median age 74.0 ± 9.4 years; 75.0% male) or WB-FFR (n = 85, median age 73.0 ± 10.2 years; 74.1% male) assessment and each had at least one intermediate coronary lesion. The primary outcome was a composite of death, myocardial infarction, and unplanned revascularization at 12 months.Results:A total of 108 vessels were assessed in the FCA-FFR group and 99 in the WB-FFR group. Functionally significant lesions were identified in 55 vessels (50.9%) and 39 vessels (39.4%), respectively (P = 0.13). Among these lesions, coronary revascularization (PCI or CABG) was performed for 32 lesions (58.2%) in the FCA-FFR group and 25 lesions (64.1%) in the WB-FFR group (P = 0.72). At 12 months, the primary endpoint occurred in 1 patient (1.2%) in the FCA-FFR group and 3 patients (3.5%) in the WB-FFR group (odds ratio: 0.78; 95% CI: 0.33 - 1.81; P = 0.62).Conclusion:The use of FCA-FFR for assessing intermediate coronary lesions yielded 12-month clinical outcomes comparable to those observed with WB-FFR.