Real world impact of added FFR-CT to coronary CT angiography on clinical decision-making and patient prognosis

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Objectives: The addition of CT-derived fractional flow reserve (FFR-CT) increases the diagnostic accuracy of Coronary CT Angiography (CCTA). We assessed the impact of FFR-CT in routine clinical practice on clinical decision-making and patient prognosis in patients suspected of stable coronary artery disease (CAD).

Methods: This retrospective, single-center study compared a cohort that received CCTA with FFR-CT to a historical cohort that received CCTA before FFR-CT was available. We assessed the clinical management decisions after FFR-CT and CCTA and the rate of major adverse cardiac events (MACE) during the one-year follow-up using chi-square tests for independence. Kaplan-Meier curves were used to visualize the occurrence of safety outcomes over time.

Results: 360 patients at low to intermediate risk of CAD were included, 224 in the CCTA only group and 136 in the FFR-CT group. During follow-up, 13 MACE occurred in 12 patients, 9 (4.0%) in the CCTA group and three (2.2%) in the FFR-CT group. Clinical management decisions differed significantly between both groups. After CCTA, 60 patients (26.5%) received optimal medical therapy (OMT) only, 115 (51.3%) invasive coronary angiography (ICA) and 49 (21.9%) single positron emission CT (SPECT). After FFR-CT, 106 patients (77.9%) received OMT only, 27 (19.9%) ICA and three (2.2%) SPECT (p<0.001 for all three options). The revascularization rate after ICA was similar between groups (p=0.15). However, patients in the CCTA group more often underwent revascularization (p=0.007).

Conclusion: Addition of FFR-CT to CCTA led to a reduction in (invasive) diagnostic testing and less revascularizations without observed difference in outcomes after one year.
Significant LAD lesion, negative FFRCT