Outcome Impact of Coronary Revascularization Strategy - Reclassification With Fractional Flow Reserve (FFR) at time of diagnostic angiography: Insights from a Large French Multicenter FFR Registry (R3F)

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Fractional flow reserve (FFR) is useful in patients preselected for coronary revascularization. There is no large report of its impact on the decision of coronary revascularization on individual patients referred for diagnostic angiography.

Methods: The R3F registry investigated 1,075 consecutive patients undergoing diagnostic angiography including an FFR investigation at 20 french centers (Oct. 2008-June 2010). Investigators were asked to define prospectively their revascularization strategy "a priori" based on angiography alone before performing the FFR. The final revascularization strategy, “reclassification” of the strategy by FFR, and 1-year clinical follow-up were prospectively recorded.

Results: 75% of patients were males with a mean age of 65 (< 50% stenosis) angiographic coronary artery disease (14%), significant (>50%) angiographic 1 vessel (39%), 2 vessel (28%) or 3 vessel disease (19%). The overall MACE (death, MI, revascularization rate at 1 year was 11.6%. The “strategy a priori” based on angiography alone was medical therapy in 55% and revascularization in 45% (PCI=38% and CABG=7%). The final strategy applied according to FFR measurements was medical therapy in 58% and revascularization in 42% (PCI=32% and CABG=10%). However in individual patients, the final strategy based on the results of the FFR was different from the “strategy a priori” in 43% of the cases: This was observed in 33% of “a priori” medical patients, in 56% of “a priori” PCI patients and in 51% of “a priori” CABG patients. Interestingly, in “reclassified” patients who were treated based on the FFR and not on the angiography based “a priori” decision (n=464), the 1-year outcome was as good as in patients in whom the final decision concurred with the decision “a priori” (n=611, MACE=11.2% vs. 11.9%, p=0.78).

Conclusion: This study demonstrates that the use of FFR during diagnostic angiography is associated with reclassification of the revascularization decision in about half of the patients. It further demonstrates that it is safe to pursue a revascularization strategy divergent to that suggested by angiography alone but guided by FFR measurements. These data further support to the concept of "FFR guided" coronary revascularization.