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Fractional Flow Reserve Application in Everyday Practice: Do We Adopt the Recommendations?

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Background:
Fractional flow reserve (FFR) is considered the gold standard for invasive assessment of functional significant coronary stenosis. It is an important tool for decision making during revascularization procedures in case of a single as well as multi-vessel coronary disease. Nevertheless, its application and outcome in daily practice has been less reported.

Aim:
The aim is to assess the implementation of FFR in clinical practice in terms of adherence to recommendations and its influence on cardiovascular outcomes.

Methods:
We performed a retrospective observational cohort study of patients who underwent FFR measurements during coronary angiography in Rabin Medical Center until December 2011 with a median follow up 27 months (Range 7 –112 months. Clinical outcomes were observed up to 2 years and included all-cause mortality, cardiac-mortality and major adverse cardiac events (MACE) defined as hierarchal composite of cardiac-mortality, non-fatal MI, target vessel revascularization or need for coronary bypass surgery.

Results:
Out of 189 patients who underwent FFR measurement, unstable angina was the most frequent clinical presentation (73.6%). Only 55 patients (29.1%) had significant functional stenosis (FFR≤0.8). Sixty eight patients (36%) underwent immediate coronary interventions while 64% were deferred from revascularization procedures and followed conservatively using optimal medical treatment. During the follow up period all-cause mortality rate was 4.92% and the overall MACE rate was 8.5%. MACE rate at 2 years follow up was higher for those who were deferred from revascularization (11.7%*vs.*3.4%, p=0.23). Thirty five patients (18.5%) were treated in discordance to FFR results with overall MACE rate similar to those who were treated in concordance (8.3%*vs.*8.6%, p=0.41).

Conclusions:
In the 'real world' of interventional practice, the clinical outcome of FFR-guided coronary treatment was favorable with either percutaneous coronary angiography or conservative management, despite incomplete adherence to FFR revascularization guidelines.