Abstract: P1963

The determinants of functional significance of coronary bifurcation lesions and its implications on clinical follow up to 48 months (insights from FIESTA registry)

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Background: There is no study up-to-now to determine the rate of functionally significant coronary bifurcation lesions, which have to be intervened and what are the clinical consequences of the FFR case selection strategy.

Methods: We analyzed patients from FIESTA registry, which was continuation of FIESTA study (Ffr vs. IeEcgSTA, ClinicalTrials.gov Identifier: NCT01724957). Patients with stable angina were included (if there were other coronary stenoses they were threatred first after checking by FFR for functional significance). The inclusion criterions were angiographic bifurcation lesions in a native coronary artery with diameter ≥2.5 mm and ≤4.5 mm and SB diameter ≥2.0 mm. We excluded patients with ST-segment elevation myocardial infarction, left main, hemodynamic instability and those with non-cardiac co-morbidity conditions with a life expectancy of less than one year. PCI was performed according to the current guidelines. Provisional stenting was the default strategy in all patients. Two guidewires were inserted into both distal MB and SB. Initial FFR was performed using the PrimeWire or PrimeWire Prestige (Volcano Corp., USA). For all FFR measurements, intracoronary adenosine was given in increasing doses of 60 mcg, 120 mcg, and 240 mcg. The minimum value of FFR measurements was taken for analysis. All patients received double antiplatelet therapy with ADP-antagonist and aspirin for at least 12 months.

Results: A 130 consecutive patients with coronary bifurcation stenoses were included – 57 had positive FFR<.80 in main vessel of bifurcation lesion (44% functionally significant lesions). The mean age was 67±10 years, 66% males, 96% hypertensive, 39% diabetic, 96% dyslipidemic (or on treatment with statin), 55% smokers, 22% with previous myocardial infarction, 51% with previous PCI. The residual SYNTAX score before FFR bifurcation assessment was 13±4 (FFR<.80) vs. 8±3 (FFR≥0.80), p<0.001. Univariate predictors of bifurcation FFR<.80 were: proximal (MV%DS) or distal (MB%DS) main vessel stenosis ≥85% (derived from ROC analysis with overall accuracy 77% and 72%, accordingly), lesion length, SYNTAX score, triglyceride concentration, previous MI on lateral wall and carotid artery disease. On multivariate logistic analysis only MV%DS>85% (OR=8.929, CI 2.887–27.619, p<0.001), MB%DS>85% (OR=3.831, CI 1.349–10.883, p=0.012) and SYNTAX score≥12 (OR=16.466, CI 5.225–15.889, p<0.001). At median follow-up of 26 months (IQR 17–35) the all-cause mortality was 17.5% in FFR positive bifurcations vs. 4.1% in FFR negative lesions (log-rank =.067).

Conclusions: Less than a half of angiographically significant coronary bifurcation lesions are functionally significant and require stent implantation. The functional significance was related with higher degree stenosis in main vessel and overall disease severity estimated with SYNTAX score. A trend to lower mortality was noted in group with non-significant FFRs.