448 Comparison of quantitative flow ratio, Pd/Pa, and diastolic hyperaemia-free ratio vs. fractional flow reserve in non-culprit lesion of patients with non-ST-segment elevation myocardial infarction

Matteo Tebaldi, Simone Biscaglia, Andrea Erriquez, Carlo Penzo, Carlo Tumscitz, Alessandra Scoccia, Andrea Marrone, Antonella Scala, Federico Gibiino, Graziella Pompei, Paolo Tolomeo, and Gianluca Campo
Cardiovascular Institute, Azienda Ospedaliero-Universitaria di Ferrara, Cona, Ferrara, Italy

Aims: To investigate the correlation between quantitative flow ratio (QFR), Pd/Pa, diastolic hyperaemia-free ratio (DFR), and fractional flow reserve (FFR, gold standard) in non-culprit lesion (NCL) of patients with non ST-segment elevation myocardial infarction (NSTEMI). The non-hyperemic pressure ratio (NHPR) and the angiography-based indexes have been developed to overcome the limitation of the use of the FFR.

Methods and results: Between January and December 2019, 184 NCL from 116 NSTEMI patients underwent physiologic assessment and were included in the study. NCLs were investigated with QFR, Pd/Pa, DFR, and FFR. Mean values of QFR, Pd/Pa, DFR, and FFR were 0.85 ± 0.10, 0.92 ± 0.07, 0.93 ± 0.05, and 0.84 ± 0.07, respectively. DFR and FFR showed a good correlation ($r = 0.76$). Bland and Altman plot showed a mean difference of 0.080. DFR diagnostic accuracy was 88%. The area under the ROC curve (AUC) for DFR was 0.946 (95% CI: 0.90–0.97, $P = 0.0001$). Similar findings were reported for Pd/Pa [$r = 0.73$; mean difference 0.095, diagnostic accuracy 84%, AUC 0.909 (95% CI: 0.85–0.94, $P = 0.0001$)] and QFR [$r = 0.68$; mean difference: 0.01; diagnostic accuracy: 88%, AUC: 0.964 (95% CI: 0.91–0.98, $P = 0.0001$)]. FFR, QFR, Pd/Pa, and DFR identified 31%, 32%, 30%, and 32% potentially flow-limiting lesions, respectively.

Conclusions: In NSTEMI patients, QFR, Pd/Pa, and DFR showed equivalence as compared to gold standard FFR in the discrimination of non-culprit lesions requiring revascularization.