Background: Circulating microRNAs (miRs) are differentially regulated and selectively packaged in microparticles in patients with Coronary Artery Disease (CAD). We evaluated whether circulating miRs in patients with stable CAD have prognostic impact on the occurrence of cardiovascular events.

Methods and results: 10 endothelial-expressed miRs including miR-126, miR-222, miR-143, miR-21, miR-20a, miR-27a, miR-92a, miR-17, miR-130 and miR-199a in plasma and circulating microparticles (MPs) were quantified by real-time polymerase chain reactions in 181 stable CAD patients. The median follow-up time for Major Adverse Cardiovascular Event (MACE) free survival was 6.1 (6.0,6.4) years. Five patients were lost to follow-up. A first MACE occurred in 55 (31.3)% patients. There was no significant association between cardiovascular events and plasma levels of these 10 endothelial-expressed miRs. In contrast, an increased expression of miR-126 and miR-199a in circulating MPs (MMPs) was significantly associated with a reduced MACE rate. In multivariate analysis, higher level of MMP-126 was identified as an independent predictor of survival free of MACE (hazard ratio: 0.381, 95% CI: 0.190-0.764; P=0.007) and revascularization (hazard ratio: 0.391, 95% CI:0.178-0.681; P=0.002). Likewise, increased level of MMP-199a was associated with a reduced risk of MACE (hazard ratio: 0.414, 95% CI: 0.211-0.812; P=0.01) and revascularization (hazard ratio: 0.305, 95% CI: 0.135-0.691; P=0.004) in multivariate analysis.

Conclusion: The level of MMP-126 and MMP-199a predict the occurrence of cardiovascular events and may help to identify patients with CAD at increased cardiovascular risk.

P5529 | BEDSIDE
A new scoring system for predicting FFR results
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Background: Percutaneous coronary intervention (PCI) guided with fractional flow reserve (FFR) has shown to improve clinical outcomes. Although coronary angiogram is still the standard method for guiding PCI, the visual and functional severities are not always correlated, suggesting there are additional visual factors that affect functional ischemia.

Method: To evaluate the angiographic predictors for positive FFR in stenotic lesions, angiographic characteristics of 260 consecutive patients (362 lesions) who underwent FFR testing from April 2009 to September 2012 were analyzed. After logit regression analysis, the following independent predictors were identified: stenosis >75% (OR 4.68, p<0.0001), tandem lesion (OR 3.49, p<0.0001), true bifurcation (OR 2.57, p=0.02), lesion length >20mm (OR 1.92, p=0.002), and distance from ostium >20mm (OR 1.37, p<0.05). Using these parameters, the STABLED score (Stenosis 2 points, TAndem lesion 1 point, Bifurcation 1 point, LEsion length 1 point, Distance from ostium 1 point) was determined and validated for efficacy.

Results: The area under receiver-operator curve for probability of positive FFR by the STABLED score is 0.84. A STABLED score ≥3 has 71.6% sensitivity and 84.1% specificity for predicting positive FFR, and its positive predictive value is 77.1%.

Conclusion: Specific angiographic features are applicable for predicting functional ischemia. This new STABLED score determined only by visual angiography, correlates well with FFR testing.

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Five-year outcomes and late adverse events after sirolimus-eluting stent implantation for unprotected left main coronary artery disease
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Background: The clinical guideline for unprotected left main (LM) disease has been updated and percutaneous coronary intervention (PCI) for LM disease has become a common procedure in daily clinical practice. Long-term clinical outcome, however, has not been adequately addressed yet, especially late adverse events after 1 year for LM stenting. Therefore, we evaluated long-term clinical outcome including late adverse events beyond 1-year after LM-PCI in consecutive 134 patients who received unprotected LM stenting with sirolimus eluting stents (SES) at Kyoto university hospital between September, 2004 and December, 2009. The mean clinical follow-up period of this study was 4.0±1.8 years. Late adverse events were defined as sudden cardiac death, target-vascular myocardial infarction (MI), emergent revascularization for LM disease, and acute congestive heart failure (ACHF), which occurred beyond 1 year after stent implantation. The cumulative incidence of all-cause death, cardiac death, and target-lesion revascularization (TLR) for LM disease was 9%, 8.1%, and 12.9%, respectively. The cumulative incidence of cardiac death was significantly higher in patients with 2 stenting technique compared to those with single stenting. Late adverse events were occurred in 6 patients. There were no late adverse events in patients without bifurcation LM disease at initial procedure.

Conclusions: Five-year clinical outcome of SES implantation for unprotected LM disease was relatively favorable and the risk of late adverse events seemed to be an acceptable range. However, the high risk patient for late adverse events such as those with true bifurcation lesion and receiving complex stenting, seems to require close observation.

P5530 | BENCH
Reperfusion-induced mitochondrial dysfunction in the porcine heart is reduced by TRO40303 in the area at risk predominantly through preservation of outer mitochondrial membrane intactness
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Mitochondria are considered to play critical roles in cell death pathways following ischemia-reperfusion injury. The objective of the present study was to perform a functional assessment of mitochondrial complex II and reduced transmembrane potential (ΔΨm) following ischaemia-reperfusion injury of the porcine heart as well as to evaluate mitochondrial effects of hypothermia and the outer membrane translocator protein (TSPC) ligand TRO40303. Pigs were subjected to 40 min occlusion of the left anterior descending artery followed by 4 hours of reperfusion. Three groups of pigs were treated either by administration of 15 mg/kg TRO40303 or the same volume of saline (1 ml/kg) at normothermia 5 min before reperfusion, or by hypothermia (32°C) initiated prior to occlusion, n=8 for all groups. Transmural needle biopsies were taken from the non-ischemic area in the left lateral wall, from the area at risk in the midventricular anterior wall and from the ischemic core area in the apical anterior wall. Mitochondrial respiratory function was evaluated polarographically in skinned heart fibers using specific substrates and inhibitors. In the control group, heart fibers from both ischemic areas demonstrated a general reduction of respiratory states. However, respiration linked to respiratory complex I was more affected than to complex II indicating loss of soluble matrix components such as NAD (H). Addition of exogenous cytochrome c (Cytc) increased the level of respiration several fold in both ischemic areas indicating increased availability of cytochrome c, which contributed to the reduced levels of respiration. These changes were diminished by hypothenmia in both ischemic areas. TRO40303 attenuated inhibition of complex II and reduced the altered ratio of CytC in the area at risk, but did not significantly reduce the altered ratio of complex I- and II-mediated respiration, and was without effect in the ischemic core area. It is concluded that TRO40303 protected the mitochondrial core area and the area at risk undergo significant alterations in respiratory function following ischemia-reperfusion injury consistent with both inner and outer mitochondrial membrane permeabilization which can be inhibited by hypothermia initiated prior to occlusion. Administration of TRO40303 prior to reperfusion appears to reduce