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**MiR-126-3P and MiR-223-3p in Prediction of Thrombotic Risk in Patients with Acute Myocardial Infarction and Primary Angioplasty, The Prague-18 Genetic Sub-study**

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**On behalf:** the PRAGUE-18 study group

**Topic(s):**
Acute Coronary Syndromes: Pharmacotherapy

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**Background:** Balancing the intensity and duration of antiplatelet therapy according to thrombotic risk is a fundamental need in order to optimize therapy effectiveness and safety. Incorporation of new predictors in thrombotic risk stratification is therefore of a crucial importance for antiplatelet therapy net clinical benefit.

**Purpose:** The present analysis aimed to evaluate the relation of miR-126-3p and miR-223-3p, new markers of platelet activation, in order to facilitate prediction of recurrent thrombotic events after acute myocardial infarction (AMI).

**Method:** The analysis included 598 patients (age median 62 years, men 77.8%) randomized in the Prague-18 study (ticagrelor vs. prasugrel in AIM treated with primary PCI). During the study follow up, 40.6% of patients switched to clopidogrel. Determination of miR was evaluated 24 hours after admission; miR-126-3p and miR-223-3p were normalized by miR-423-3p and miR-150-5p. Quantitative determination of selected miRNAs was performed with a novel microRNA immunoassay method.

Selected miRNAs were compared with key efficacy endpoints (cardiovascular death, nonfatal MI and stroke), stent thrombosis and all hemorrhagic events, and analysed using univariate and multivariate logistic regressions.

**Results:** Increased values of MiR-223-3p were significantly related to the occurrence of combined ischemic endpoint within 30 days [OR (95% CI) 15.739 (2.066; 119.932) p=0.008] and within one year [3.175 (1.40; 7.186) p=0.006]. Decreased ratio of miR-126-3p/miR-223-3p was significantly related to the occurrence of combined ischemic endpoint within 30 days [0.137 (0.031; 0.609) p=0.009] and one year [0.372 (0.169; 0.819) p=0.014]. MiRNAs were identified as independent predictors even after adjustment for confounding clinical predictors (Study arm, Switch to Clopidogrel, Age, Men, BMI, Smoking, History of Hyperlipidemia, Hypertension, DM, MI, PCI, CAGB, Chronic heart failure, Chronic renal failure, Peripheral arterial disease, LBBB, RBBB, TIMI <3 after PCI, Number of diseased vessels >1, Stem disease, Suboptimal of failure of PCI, Time to hospital). Adjusted ORs (95% CI) are 11.828 (1.472; 98.011), p=0.022 and 2.394 (1.021; 5.610), p=0.045 for increased value of miR-223-3p and the occurrence of combined ischemic endpoint within 30 days and one year respectively; 0.151 (0.030; 0.757), p=0.022 and 0.407 (0.179; 0.925), p=0.032 for decreased ratio of miR-126-3p/miR-223-3p and the occurrence of combined ischemic endpoint within 30 days and one year respectively. No association between miRNA and bleeding complications was identified.

**Conclusion:** The miR-223-3p and miR-126-3p to miR-223-3p ratio are strong independent predictors of...
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Conclusion: The miR-223-3p and miR-126-3p to miR-223-3p ratio are strong independent predictors of thrombotic ischemic events and can be used to stratify patients post AMI.