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**OKREŚLENIE ZNACZENIA ROKOWNICZEGO NOWYCH MIKRORNA  
ZWIĄZANYCH Z PŁYTKAMI KRWI U PACJENTÓW Z UDAREM  
NIEDOKRWIENNYM MÓZGU**

**Rozprawa na stopień naukowy doktora nauk medycznych w dyscyplinie nauki  
medyczne**

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## Streszczenie w języku angielskim

### **Determination of the diagnostic and prognostic significance of new platelet-related microRNAs in ischemic stroke patients.**

**Background:** Searching for circulating fluid biomarkers are needed for patients with ischemic stroke as diagnosis and prognosis of stroke requires cost-effective methods. In the current study we aimed to assess several whole blood circulating miRNAs (miR-106b-5p, miR-16-5p, miR-15a-5p, let-7e and miR-125a-3p and -5p) to analyze their diagnostic and prognostic utility in patients with acute ischemic stroke.

**Methods:** The study population consisted of 60 patients with the diagnosis of acute ischemic stroke. The control group consisted of 30 age- and gender-matched patients without history of stroke and/or TIA with established stable coronary artery disease and concomitant cardiovascular risk factors, including myocardial infarction and type 2 diabetes (DM). MiRNA expressions were determined by using venous whole blood samples with qRT-PCR, blood samples were collected from the control group (only once) and patients with stroke 24 h after onset of acute ischemic stroke and 7-days following index hospitalization.

**Results:** The expression levels of miR-125a-3p in stroke patients were lower both at baseline and 7-days after admission compared to the healthy individuals ( $p=0.008$ ,  $p=0.020$ , respectively). MiR-125a-5p expression was higher in patients at admission compared to controls, however during hospitalization the expression significantly decreased in day-7 compared to day at admission ( $p=0.002$ ,  $p=0.016$ , respectively). ROC curve analysis showed diagnostic potential for miR125a-3p and -5p (AUC for miR-125a-3p= 0.705; AUC for miR-125a-5p= 0.709). Patients with moderate stroke had significantly elevated miR-16-5p expression levels compared with patients with minor stroke at the day of acute ischemic stroke. AUC in ROC curve analysis was 0.718, (95% CI, 0.59–0.85)  $p = 0.004$ . Multivariate logistic regression model showed that, a high baseline miR-16-5p expression, together with DM, were independent predictors of increased stroke severity (OR: 4.34; 95% CI, 1.15–16.42;  $p = 0.031$  and OR: 4.65; 95% CI, 1.07–20.19;  $p = 0.040$ , respectively).

**Conclusion:** In this study we validated platelet-related miRNAs which could serve as diagnostic and prognostic biomarkers of the ischemic stroke complications like increased severity.