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## Association between circulating microRNAs and recurrent venous thromboembolism



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Patients with unprovoked first venous thromboembolism (VTE) are at a high risk of recurrence. Although circulating microRNAs (miRNAs) have been recently found to be associated with deep vein thrombosis and markers of hypercoagulability, this study is the first to examine whether circulating miRNAs are associated with the risk of VTE recurrence. A nested case-control study design was used, where plasma samples were obtained from 78 patients with unprovoked VTE from the Malmö thrombophilia study (MATS). A total of 39 VTE patients with recurrent VTE (cases) were matched with 39 VTE patients without recurrent VTE from the MATS study population by age and gender (controls). Plasma levels of 179 different miRNAs were evaluated in the 78 sample (after stop of anticoagulant treatment) using qPCR. A total of 110 miRNAs were detected throughout all samples. Among those, 15 miRNAs were found to be associated with recurrent VTE after adjusting for multiple comparisons. The highest odds ratio was found for miR-15b-5p (OR=7.8 per standard deviation increment) using conditional logistic regression. The following miRNAs, miR-15b-5p, miR-197-3p, miR-27b-3p and miR-30c-5p, exhibited a trend over time, with larger difference in miRNAs levels between cases and controls for earlier recurrence. Of these 15 miRNAs, eight miRNAs were correlated with TGFβ1/2 expression in the blood. None of them correlated with primary VTE. The findings indicate that circulating miRNAs are novel biomarkers for especially early VTE recurrence. Some of these miRNAs are involved in the regulation of platelets, coagulation, and TGFβ-pathway, which suggest that these pathways might be of importance in recurrent VTE.

### Biography

Xiao Wang is a researcher in Center for Primary Health Care Research (CPF), Lund University. Her research interests are different biomarkers (miRNA, Mitochondrial DNA and telomere length) associated with the pathogenesis of chronic diseases, such as venous thromboembolism (VTE), diabetes and mental disorders. Xiao Wang has found for example, miR-424-5p are associated with deep-vein thrombosis (DVT) and markers of hypercoagulability. In a recent study, the potential association between miRNAs and recurrent VTE was investigated. Her findings have been published in the journals of Thromb Haemost, Clin Epigenetics and Int J Neuropsychopharmacol et al.

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