36. The Relationship Between Whole Blood Viscosity and Intra-Cardiac Thrombus or Spontaneous Echo Contrast: Rheological Properties of the Developing Blood Clot in an In-Vivo Study

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Body

Objective: Whole blood viscosity, a main determinant of endothelial shear stress and hypercoagulability, has been demonstrated as a predictor for several thrombotic cardiovascular diseases. This study aimed to investigate the potential relationship between whole blood viscosity and intra-cardiac thrombus or spontaneous echo contrast (SEC).

Material and Methods: In this study, 42 patients who visited our cardiovascular intervention and cardiology polyclinic and were diagnosed with intra-cardiac thrombus or SEC along with 45 control patients were included in the study. Blood viscosities at shear rates of 1 s-1 (diastolic blood viscosity; DBV) and 300 s-1 (systolic blood viscosity; SBV) were measured at the baseline.

Results: Compared to the control group, the thrombus/SEC group showed a significantly higher whole blood viscosity level at both the systole and diastole phases (SBV: 44.2±5.9 mP vs. 42.0±7.4 mP, p=0.012; DBV: 296.2±67.8 mP vs. 281.3±76.0 mP, p=0.044). When Pearson's correlation coefficients between whole blood viscosity and other laboratory parameters were analyzed. Baseline hematocrit, red blood cell aggregation, total protein, and albumin showed linear associations with baseline whole blood viscosity.

Conclusion: In conclusion, whole blood viscosity may be an important and independent risk factor in patients with intra-cardiac thrombus or SEC.

Figure 1. Comparison of whole blood viscosity between two group

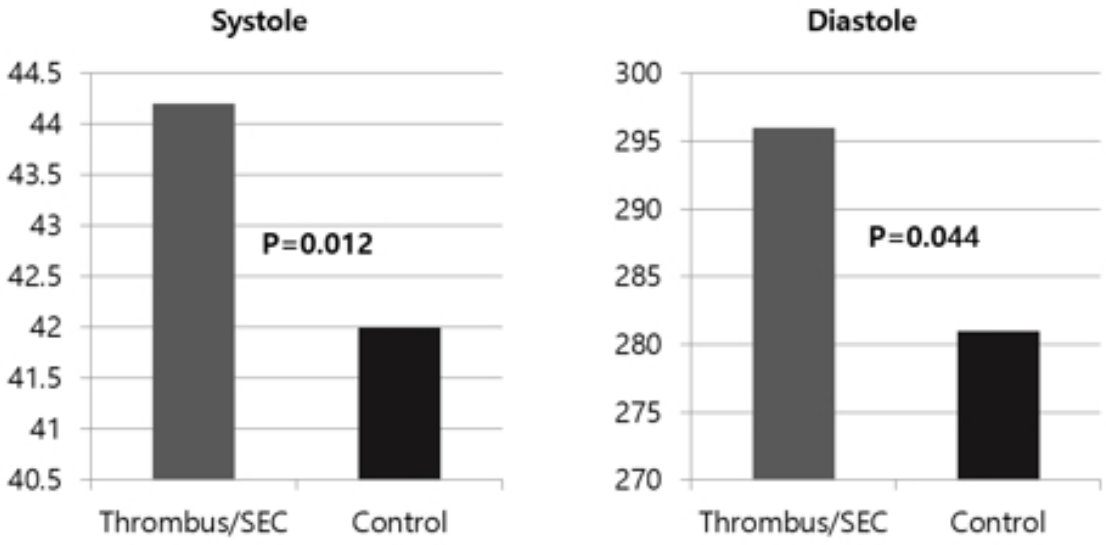
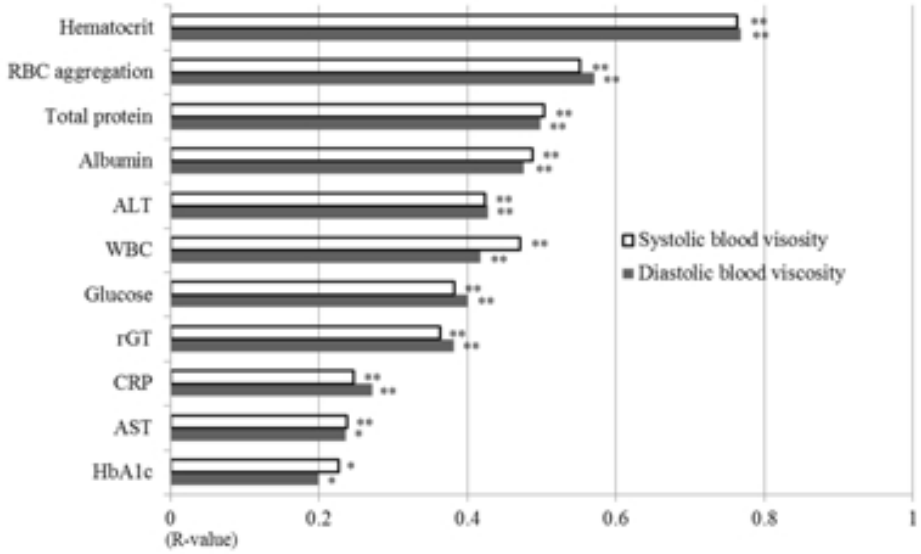


Figure 2. Correlation analysis on blood viscosity



*** p-value < 0.05, ** p-value < 0.01**

Clinical Implications: Our study will help enable cardiovascular clinicians to understand relationship between blood viscosity and intracardiac thrombus.