**Tissue Haemostasis in Patients with Idiopathic Dilated Cardiomyopathy**

Reichman Warmusz, E.[1], Dudek, D.[2], Wojnicz, R.[2] and Kurek, J.[3]

[1] Department of Histology with the Laboratory of Cell Pathology in Zabrze, School of Medicine with the Division of Dentistry, Medical University of Silesia in Katowice, Poland, [2] Department of Histology with the Laboratory of Cell Pathology in Zabrze, School of Medicine with the Division of Dentistry, Medical University of Silesia in Katowice, Poland, Poland, [3] Department of General, Endocrine and Oncologic Surgery, Multidisciplinary Hospital, Jaworzno, Poland, Poland

Idiopathic dilated cardiomyopathy (DCM) is a primary myocardial disease of unknown origin which carries a high morbidity and mortality rate. Accumulated data suggest that deregulation of local haemostasis may significantly influence the disease progression. Accordingly, the aim of the study was to investigate the phenotype expression of the selected haemostasis markers in biopsy sections from patients with DCM.

The right ventricular endomyocardial biopsy was taken from 70 patients with DCM (NYHA I to III). The autopsy sections from 25 cases were studied as the control. For immunohistochemistry, 5µm thick frozen sections were incubated with monoclonal antihuman antibodies against von Willebrand Factor (vWF), Tissue Factor (TF), Thrombomodulin (TM) and Tissue Factor Pathway Inhibitor (TFPI). En-Vision method, Alkaline Phosphatase detection system and New Fuchsin Substrate System were used. The primary antibody was omitted from negative control slides. As a positive control, colon and lymph node sections were used. Each specimen was evaluated qualitatively and semiquantitatively. The semiquantitative scoring system was defined as follows: 0, lack of staining or weak focal staining; 1+, weak multifocal staining; 2+, moderate multifocal staining; 3+ severe staining. NIKON Eclipse 80i microscope with DS-Fi1 digital camera and *NIS Elements* software from NIKON was used for light microscopy examinations.

In patients with DCM, vWF, TF and TFPI differed significantly compared to the control (Mann-Whitney U Test, $P < 0.01$). However, TM expression did not achieve statistically significant difference (NS). The up-regulation of vWF and TF ≥ 2+ was found in 42 (60%) and 34 (48.6%) patients, respectively. Decreased TFPI expression (≤1+) was found in 34 (48.6%), however its increase (3+) was present in 6 (8.6%) patients. In the study group, TM expression < 2+ was found in 26 (37.1%) but TM expression 3+ was present in 9 (12.8%) patients. Kendall's tau analysis showed that vWF expression was moderately associated with TM ($r = 0.59$, $P < 0.001$). In addition, a moderate positive association was found among cardiac TF, TM and TFPI ($r = 0.45$; 0.46; 0.41, $P < 0.01$), respectively. In conclusion, the shift of haemostasis towards procoagulation found in the current study confirmed hypercoagulable state in patients with DCM. These findings provide insight into the underlying mechanisms responsible for the disease.