

## THE AUTOLOGOUS BONE MARROW MONONUCLEAR CELL THERAPY FOR ISCHEMIC CARDIOVASCULAR DISEASE – THE PILOT RESULTS OF STUDY

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**Background:** Ischemic heart disease, as one of the major civilization diseases, has been increasing in recent years. With certainty, it becomes an integral part of every person's life, whether at a younger or older age. The myocardial infarction increases the expression of the pro-apoptotic Bax/Bak proteins in the left atrial tissue in opposition to decrease of the anti-apoptotic Bcl-2 protein.

**Aim of the study:** This study sought to investigate the effects of autologous bone marrow cell therapy during therapy for ischemic heart disease.

**Material and methods:** The level of Bax and Bcl-2 proteins in patients' plasma samples who underwent coronary artery bypass graft operation, were semi-quantitatively determined by the procedure Western blot. The normalized intensity of their signal in patients' plasma samples was measured before operation, just after the operation, 24 hours and 7 days after the operation. Furthermore, results from EKG and demography was evaluate by retrospective statistical analysis.

**Results:** The signal strength values obtained Bcl-2 and Bax were normalized as the intensity of the GAPDH signal as the internal standard. The relative plasma average level of BAX protein was  $1,31 \pm 0,26$  before CABG and  $1,43 \pm 0,35$  after 7 days in group of patients with bone marrow cell therapy and average level of BCL-2 protein was  $1,46 \pm 0,17$  before CABG and  $1,77 \pm 0,35$  after 7 days. In control group expression of BAX was 2,37 before CABG and 1,51 after 7 days. As for plasma average level of BCL-2, we noticed 1,66 before CABG and 0,56 after 7 days. The ratio anti/pro-apoptotic proteins Bcl-2/Bax was shifted to anti-apoptotic pathway.

**Conclusion:** These results provide the pivotal results of study about changes of apoptotic protein Bcl-2 and Bax levels before and 7 days after coronary artery bypass graft.