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Protective effect of anti-HMGB1 protein in experimental myocardial infarction

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High mobility group box 1 (HMGB1) is a non-histone chromosomal protein associated with various pathological conditions such as cardiovascular disease, cancer and ischemia/reperfusion injury. The aim of the study was to evaluate the effects of HMGB1 protein on biochemical and morphological parameters after experimental myocardial infarction (MI). 12-week-old Wistar-Kyoto (WKY) male rats used for the study were divided into following groups: shame operated WKY without MI, WKY with MI, WKY + IM+ anti-HMGB1 protein. *In vivo* model of experimental MI was induced by ligation of the left descending coronary artery and lasted 20 min. Before reperfusion anti HMGB1 protein was administrated I.V. Animals survived 7 days after MI. NOS activity was determined by conversion of 3 [H] Arginine to 3 [H] Citrulline in the aorta and ischemic, border and non-ischemic region of the heart. NFkB expression was determined by Western blot. For morphological parameters, the hearts were processed by TTC-staining procedure. Cytokine levels were determined in the plasma. Concentration of CD was measured spectrophotometrically. Anti-HMGB1 protein increased NOS activity in both ischemic and border part of the heart, as well as in the aorta. It significantly decreased NFkB expression in MI part of the heart, TNF-alpha and IL-6 level in plasma. Simultaneously, anti-HMGB1 protein decreased MI part as well as border region of the heart. Considering the results, HMGB1 protein is a promising molecule for reduction the negative effects of the myocardium infarction, as well as a promising agent for the treatment of cardiovascular diseases.

Biography

Martina Cebova has completed her PhD from Commenius University in Slovakia and Postdoctoral studies from Maine Medical Center Research Institute in USA. She has continued to work at the Institute of Normal and Pathological Physiology of Slovak Academy of Sciences as a Junior Scientist and since 2016 she is a Scientific Secretary of the institute. She has published in reputed journals and has been serving as an Editorial Board Member of repute.

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