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Rigorous Thesis - Abstract

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***Dysfunction of Endothelium in Relationship to Experimentally Induced
Anthracycline Drugs' Toxicity***

Endothelial dysfunction is defined as functional lesion of endothelium, characterized by increased permeability of vessel wall, by imbalance among vasoactive, coagulative and proliferation influencing active substances, in result leading to increased expression of cell adhesion molecules VCAM-1 and ICAM-1, which are considered as standard morphological markers of its progress. Adhesion molecules VCAM-1 and ICAM-1 play an important role in building-up of inflammatory reaction and take part in various pathological stages. They are expressed by endothelial cells, by scavenger cells, macrophages and smooth muscle cells.

The aim of this rigorous thesis was to examine whether long-lasting daunorubicin administration leads except of significant changes in heart also to the progress of endothelial dysfunction. Immunohistochemical methods were used to detect the expression of these adhesion molecules. Then, the selected heart parameters like LVEF (left ventriculum eject fraction), FS (fractional shortening) and dP/dt_{max} index, that means peak increase of blood pressure in left ventriculum at isovolumic phase of systole were measured.

The results demonstrated significant induction of cardiotoxic changes, which were confirmed by the decrease of eject fraction and reduced contractility of left ventriculum at the end of the experiment. However, immunohistochemical analysis did not demonstrate induction of endothelial expression of VCAM-1 in neither control nor in daunorubicine group. Weak endothelial expression of ICAM-1 was observed at both animals' group, however, there was not any difference in staining intensity between those groups.

Therefore, in conclusion the results of this rigorous thesis did not demonstrate the progress of endothelial dysfunction in rabbit's vessel after long-term administration of daunorubicine.

