The role of HMGB-1 protein in obese rats in experimental model of myocardial infarction

Supervisor: RNDr. Martina Cebová, PhD.

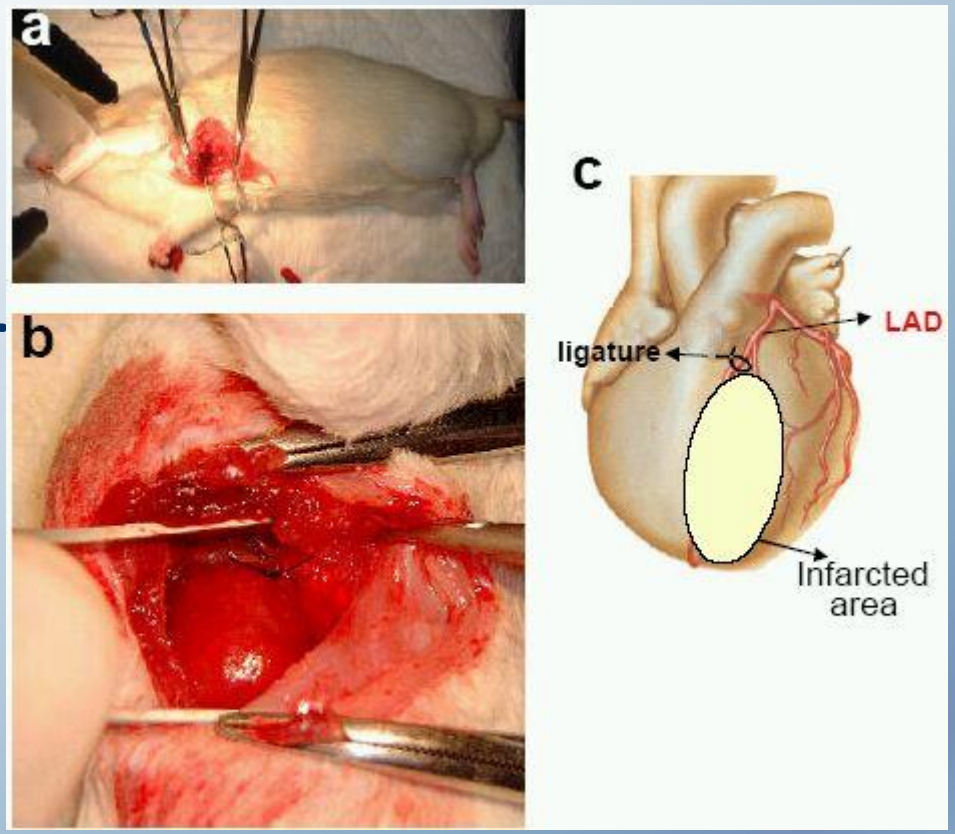
Institute of Normal and Pathological Physiology Centre of Experimental Medicine Slovak Academy of Sciences

Anotation

- Myocardial infarction is one of the most common causes of mortality worldwide. The prognosis of myocardial infarction is conditioned by a number of risk factors, including obesity. Cell necrosis releases a large number of proteins, including the High-mobility group box 1 (HMGB-1) nuclear protein, which may be responsible for the deleterious effects of ischemia-reperfusion injury. The aim of the dissertation will be to determine the role of HMGB-1 nuclear protein after experimentally induced myocardial infarction in obese rats, to evaluate its effect in structural and biochemical changes of individual myocardial zones.

Methods

- ✓ Experimentally induce myocardial infarction by ligation of the left descending coronary artery



Methods

- Blood pressure (BP) will be measured non-invasivelly, by the tail-cuff-plethysmography.
- Nitric oxide synthase (NOS) activity will be determined by conversion of ^{3}[H] Arginine to ^{3}[H] Citrulline
- Gene expressions of gene involved in NO production, antioxidant system, nuclear factor kappa B and other inflammation markers will be determine by qRT-PCR and protein expression by the Western blot analysis
- Cytokine levels will be investigated using the Bio-Plex Pro Cytokine kit in the plasma.
- Development of oxidative stress will be investigated by determination of concentration of conjugated dienes
- Localization of various receptors and enzymes will be visualized by immunofluorescent technique
- 2,3,5- triphenyltetrazolium chloride (TTC) staining will be used to determine the size of myocardial infarction