Effect of pulsed radiofrequency on nitroxidergic system in a model of neuropathic pain in rat

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Pulsed radiofrequency (PRF) has been ascribed among the most promising non-invasive methods for the treatment of neuropathic pain (Sluijter 1998), nevertheless its mechanism of action has not been still clarified. Nitric oxide is involved in pain modulation both at peripheral and central nervous system (Rodella 1998; Cizkova 2002).

The aim of this work was to monitor the effect of PRF on nitroxidergic system in DRGs, spinal cord and PAG (periaqueductal grey matter) in a neuropathic pain model.

Experiment was carried out on 18 male Sprague-Dawley rats.

The animals were subdivided into two groups: 1) non-operated animals; 2) operated animals, in which the left sciatic nerve was tied (chronic constriction injury - CCI) according to Bennett and Xie (1998). The half of the animal of each group was treated with PRF, whereas the others were used as an untreated control. PRF was performed at 7th post-operative day and monitored at 14th post-operative days. The animals were killed and the DRGs, lumbar spinal cord (L4-L6) and midbrain were removed, frozen and then processed for nNOS immunohistochemistry.

In operated (CCI) animals we observed a significant increase in nNOS immunostaing intensity in the small neurons of DRGs; an increase of nNOS- positive neurons at spinal cord level and a decrease of nNOS-immunostaining in dorsolaterl area of the PAG. In the animals treated with PRF, the patter of nNOS was similar to the control group.

Our data showed that PRF modulates nNOS both in peripheral and central nervous system suggesting a direct effect of PRF on nitroxidergic system.

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Caveolae mediated endocytosis in HepG2 cells: caveosomes or lysosomal degradation

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Nowadays it is generally accepted that, under special conditions, caveolae can take part in ligand internalization. Endocytosis via caveolae is a slow, highly regulated process exists as alternative endocytic machinery parallel to clathrin-dependent endocytosis. Along the caveolar pathway, caveosomes were described as intermediate organelles, characterized only by the presence of caveolin-1 at their limiting membrane. Ligands endocytosed by clathrin-coated pits, however, were never detected in caveosomes. At present, there is no evidence indicating or excluding the potential communication between caveosomes and the organelles of the classical endocytic pathway.

In our work we were especially interested in what can be the further intracellular fate of caveolin-1 and caveosomes. To