

Effects of Arterial N-acetylcysteine (NAC) on the Expression of Protein Chaperones PDI, ERp57, Heat Shock Protein 40, 60, 70, 90 kd, The Qualitative Presence of Intracellular Apoptosis Markers, and Lipid Peroxidation in Reperfusion in Rat Spinal Cord

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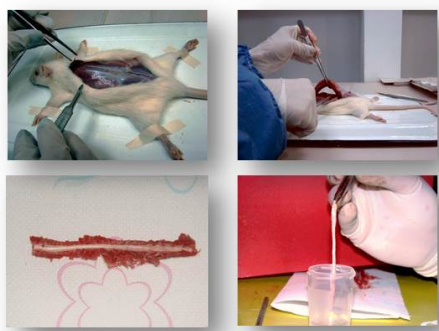
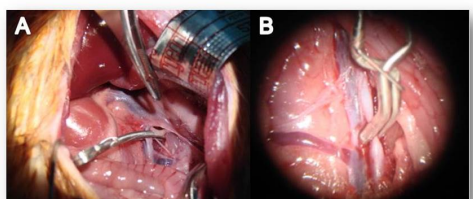
Introduction

Experimental, controlled, non-randomized laboratory investigation. Scavenger precursor N-acetylcysteine can protect reperfusion injury in rat spinal cord.

Methods

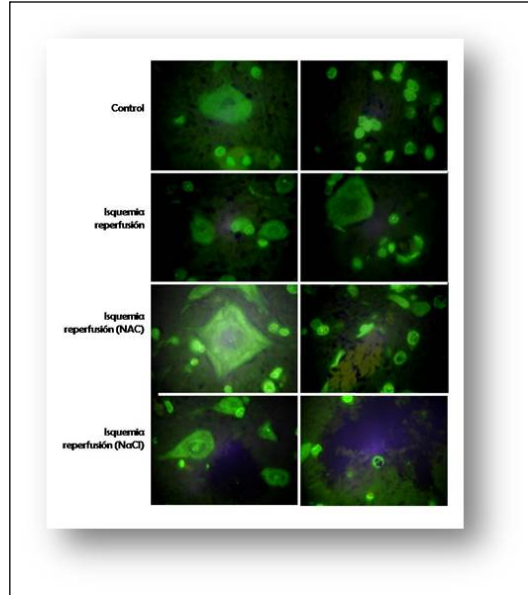
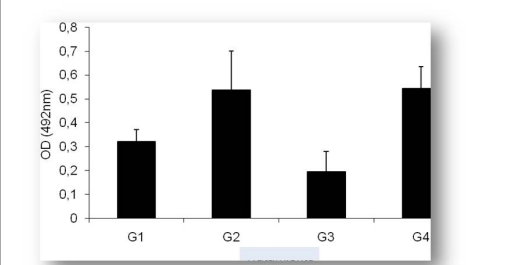
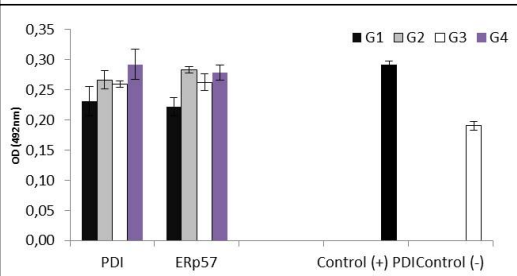
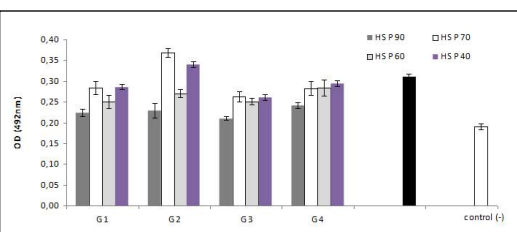
In this study Wistar male rats were used. 48 animals were included in four groups. Group 1: control animals without surgery, without treatment with NAC Group 2: Animals with surgical intervention (ischemia) without treatment after ischemic spinal cord stroke. Group 3: Animals with surgical intervention (ischemia) and reperfusion post ischemia with NAC. Group 4: Animals with surgical intervention (ischemia) and reperfusion post ischemia with saline solution. Ischemia time was 45 minutes. The dose of NAC was 150 mg / kg. For the experimental groups 3 and 4, after 45 min of ischemia were perfused with saline (group 3) or NAC (group 4), and then pulled the clip to restore blood flow at 45 min after the start of ischemia. Within 24 hours of surgery, animals were induced cardiac arrest under anesthesia with sodium thiopental (100mg/kg) and transcardiac perfusion was performed with 200 ml of PBS (0.05mol / l) followed by 200 ml of paraformaldehyde 4%. Spinal cord was removed and the tissue was posts fixed in paraformaldehyde overnight at 4 ° C and embedded in paraffin for microtome cuts and perform immunocytochemistry and immunofluorescence.

GROUP	PROCEDURE
1	Control, no surgery, no medication
2	Surgery (ischaemia), no medication
3	Surgery (ischaemia), NAC reperfusion
4	Surgery (ischaemia), Saline reperfusion



Results

We identified heat shock proteins that are modified significantly during ischemia and during reperfusion postischemic. Likewise, was established the modification of tissue levels of malonyl dialdehyde as a marker of lipid peroxidation which was significantly different with and without the administration of NAC during postischemic reperfusion.



Conclusions

The results of this work show that NAC reduces the harmful effects of free radicals in post ischemic reperfusion of nerve spinal cord tissue. In all analysis the results favor the hypothesis that the protective effect of NAC on post ischemic reperfusion of nerve tissue.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Identify the protective effects of N-acetylcysteine as precursor of natural antioxidants in neural tissue during reperfusion injury induced with spinal cord ischaemia