

Abstract

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Title: Motor and cognitive consequences of hypoxic-ischemic damage

Objectives: The aim of this diploma work was assess the impact of Enriched Environment on development of rats after hypoxic-ischemic damage.

Methods: Experiment was performed in 30 Long Evans rats from breeding in Institute of Physiology, Academy of Sciences of the Czech Republic. All rats were operated for dissection of carotid. Than randomly were half of rats chosen for hypoxic-ischemic damage. Group with hypoxic-ischemic damage were divided into control and experimental group, same procedure was with rats without HIE. For one week were rats from experimental group in special Enriched Environment cage, than they were split into smaller cages with Enriched Environment. Rats from control groups were in normal cages without special equipment. After defined time were all rats tested by chosen test: Reaching test, Ladder rung walking test, Bar holding test, Rotarod test, Morris water maze test, Open filed test. For data analysis were used Microsoft Excel 365, Sigma plot.

Results: Results of test showed, that Enriched Environment can positively enhance motoric and cognitive deficit in rat development with hypoxic-ischemic damage. But it is obvious, that Enriched Environment can positively enhance development also in healthy individuals. Influence of Enriched Environment was tested by: Reaching test, Ladder rung test, Bar holding test, Morris water maze test and Rotarod test.

Keywords: hypoxic-ischemic encephalopathy, neurologic deficit, functional testing