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## 氯化钴后处理对新生鼠缺氧缺血性脑损伤学 分享到:

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Title: Cobalt chloride post-conditioning improves spatial working memory in rats of neonatal hypoxic-ischemic encephalopathy

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摘要: 目的 探讨氯化钴(cobalt chloride, CoCl<sub>2</sub>)后处理对缺氧缺血性脑损伤新生大鼠空间学习记忆的作用。 方法 生后7日龄SD大鼠66只,分为假手术组(n=16)、缺氧缺血组(HI组, n=18)、CoCl<sub>2</sub>即刻干预组(C1组, n=14)、CoCl<sub>2</sub>术后1 d干预组(C2组, n=18)。Western blot检测

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[本期目录/Table of Contents](#)

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术后1、2、7 d脑组织HIF-1 $\alpha$ 蛋白的表达。大鼠生后7周行水迷宫观察CoCl<sub>2</sub>对大鼠空间学习记忆的影响。结果 HI组和C1组HIF-1 $\alpha$ 蛋白在术后第1、2天增多,第7天则不能检测到HIF-1 $\alpha$ 蛋白。而C2组第7天仍能检测到HIF-1 $\alpha$ 蛋白表达。水迷宫实验显示C2组较HI组3~5 d时平均潜伏时间明显缩短,穿越原平台区域的时间增加,空间学习记忆能力部分恢复( $P<0.05$ )。结论 在新生鼠缺氧缺血性脑损伤时,CoCl<sub>2</sub>促进HIF-1 $\alpha$ 蛋白的持续表达,术后1 d干预可有效恢复大鼠的空间学习记忆能力。

Abstract: Objective To determine the effect of cobalt chloride (CoCl<sub>2</sub>) post-conditioning on the spatial working memory in neonatal rats with hypoxic-ischemic induced brain damage (HIBD).  
Methods Sixty-six SD rats aged 7 d were randomly divided into sham operation group (N,  $n=16$ ), hypoxia-ischemia group (HI,  $n=18$ ), CoCl<sub>2</sub> administration immediately after surgery group (C1,  $n=14$ ) and CoCl<sub>2</sub> administration 1 d after surgery group (C2,  $n=18$ ). The left common carotid artery of rats were ligated after anesthesia followed by hypoxia. In the sham control group, the left common carotid artery was exposed but was not ligated or exposed to hypoxia. The brain tissues were harvested from the pups in each group at 1, 2 and 7 d after ligation. HIF-1 $\alpha$  expression was detected by Western blot analysis. At age of 7 weeks, pups of each group were trained to do the Morris water maze test to evaluate their spatial learning and memory abilities.  
Results HIF-1 $\alpha$  expression was up-regulated in HI, C1 and C2 groups at post operation days 1 and 2, then decreased, and even