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丰富环境干预对慢性低灌注血管性痴呆大鼠学习记忆及突触素蛋白和微管相关蛋白的影响 [点此下载全文](#)

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摘要:

**摘要目的:** 观察丰富环境干预对慢性低灌注血管性痴呆大鼠学习记忆能力、海马突触素(SYN)蛋白及微管相关蛋白-2(MAP-2)表达的影响。方法: 雄性SD大鼠随机分为正常对照组、模型组、丰富环境组。双侧颈总动脉永久性结扎制备慢性低灌注大鼠模型。丰富环境干预50d后, 利用Morris水迷宫检测学习记忆功能; 免疫组织化学法检测SYN、MAP-2的表达。结果: 慢性低灌注大鼠空间参考记忆能力下降, 搜索隐藏平台的逃避潜伏期和游泳路径明显延长; 定位记忆障碍, 在空间探索实验中准确穿越平台位置的次数减少; 工作记忆明显损害, 寻找移动平台的逃避潜伏期及游泳路径比正常大鼠明显延长( $P<0.01$ 或 $P<0.05$ )。海马CA1、CA3区SYN、MAP-2的免疫反应明显减弱( $P<0.01$ )。丰富环境干预后, 大鼠搜索隐藏平台的逃避潜伏期和游泳路径均有不同程度的缩短, 准确穿越平台所在位置的次数比模型组增加; 移动平台位置后, 动物找到平台的时间和游泳路径明显比模型组缩短( $P<0.01$ 或 $P<0.05$ ); 海马区SYN、MAP-2的积分光密度值均有不同程度增加( $P<0.01$ 或 $P<0.05$ )。结论: 丰富环境干预可改善慢性低灌注大鼠学习记忆能力, 其作用与上调海马SYN、MAP-2蛋白表达, 提高突触可塑性有关。

**关键词:** [血管性痴呆](#) [丰富环境](#) [康复](#) [微管相关蛋白-2](#) [突触素](#)

Effects of enriched environment on learning and memory as well as synaptophysin protein and microtubule-associated protein in vascular dementia rats with chronic hypo-infusion [Download Fulltext](#)

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Abstract:

**Abstract Objective:** To observe the effects of enriched environment(EE) intervention on learning-memory, synaptophysin (SYN) and microtubule-associated protein-2 (MAP-2) in vascular dementia (VD) rats with chronic hypo-perfusion. Method: SD rats were divided into normal group, model group and EE group. The chronic hypo-perfusion model was replicated by permanent bilateral common carotid artery ligation. Learning-memory function examination assessed with Morris water-maze was performed at 50 days after EE intervention. SYN and MAP-2 were observed by immunohistochemistry combined with image analysis. Result: The escape latency and swim distance for searching the hidden platform were obviously longer in model group in comparison with normal group. The frequency of rats going through the platform correctly decreased in model group. The escape latency and swim distance for searching the moving platform were obviously longer in model group in comparison with normal group ( $P<0.01$  or  $P<0.05$ ). The immunoreaction of SYN and MAP-2 in hippocampal CA1 and CA3 regions reduced significantly in model group ( $P<0.01$ ). The escape latency and swim distance for searching the hidden platform were obviously shorter in EE group in comparison with model group. The frequency of rats going through the platform correctly increased and the escape latency and swim distance for searching the moving platform were obviously shorter in EE group in comparison with model group. The integrated optical density (IOD) values of SYN and MAP-2 expressions increased markedly in EE group( $P<0.01$  or  $P<0.05$ ). Conclusion: EE intervention can improve the ability of learning-memory of rats in chronic hypo-perfusion status, it is related to the increasing of expressions of SYN and MAP-2 and synaptic plasticity.

**Keywords:** [vascular dementia](#) [enriched environment](#) [rehabilitation](#) [microtubule-associated protein](#) [synaptophysin](#)

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