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海马、额叶局部脑血流灌注异常对学习记忆功能的影响及分子机制 [点此下载全文](#)

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摘要:

目的: 探讨海马、额叶局部脑血流量(rCBF)灌注异常对学习记忆功能的影响及其分子机制。方法: 将64只雄性健康成年SD大鼠随机分为手术组和假手术组, 手术组和假手术组再分别被随机分为A、B、C、D亚组和A0、B0、C0、D0亚组, 各亚组大鼠分别于实验开始后4h、8h、24h、3d时分别采用“Y型电迷宫”测定其学习记忆能力、PeriFlux PF3型激光多普勒血流仪测定额叶、海马的rCBF、免疫组化法测定额叶、海马组织c-fos、c-jun、Bcl-2、Bax基因表达情况。结果: 同一时间点手术组大鼠的学习记忆能力均低于假手术组, 海马、额叶皮质rCBF也明显低于假手术组; 而海马、额叶细胞c-fos、c-jun染色阳性率及其平均吸光度均明显高于假手术组($P < 0.05$); 各手术组中随着rCBF降低, 细胞c-fos、c-jun阳性细胞表达率、平均吸光度和Bax/Bcl-2比值逐渐增多($P < 0.05$)。结论: 海马、额叶rCBF降低可以引起大鼠的学习能力降低, 其降低的原因可能与c-fos、c-jun、Bcl-2和Bax阳性细胞表达增多有关。

关键词: [局部脑血流灌注](#) [学习记忆能力](#) [额叶](#) [海马](#) [分子机制](#)

Studies on effects of special brain area regional cerebral blood flow perfusion abnormality on learning memory function and its molecular mechanism in rats [Download Fulltext](#)

Jining Medical College, Shandong, Jining, 272013

Fund Project:

Abstract:

Objective: To study effects of special brain area regional cerebral blood flow(rCBF) perfusion abnormality on learning memory function and its molecular mechanism in rats. Method: A total of 64 adult male healthy SD rats were randomly divided into two groups, the false operation group(control group) and the operation group(model group). The false operation group was randomly sub-divided into four subgroups(A0, B0, C0 and D0); the operation group was randomly sub-divided into four subgroups(A, B, C and D), there were eight rats in each group. The operation groups were given bilateral common carotid artery permanent ligation, the other groups were given skin surgical operation only. Result: The rCBF of right frontal lobe division and right hippocampus division in operation group were significantly lower than that of false operation group ($P < 0.05$). The error number (EN) and the day of reach standard and total reaction time(TRT) of learning index sign in operation group rats were significantly higher than that of false operation group rats ($P < 0.05$); but the active avoid rate in operation group rats was significantly lower than that of false operation group rats. The Fos and Jun positive expression and average absorbency of right frontal lobe division and right hippocampus division in all operation groups were significantly higher than that in false operation groups($P < 0.05$). Bax and Bcl-2 positive cells were all increasing in operation groups, and the expression ratio of Bax/Bcl-2 in operation groups was significantly higher than that in false operation groups($P < 0.01$). Conclusion: rCBF decrease can impair learning and memory abilities of rats, which may be related to the increase of expression ratio of c-fos or c-jun or Bcl-2 or Bax in frontal cortex and hippocampus.

Keywords: [regional cerebral blood flow](#) [learning memory function](#) [frontal lobe](#) [hippocampus](#) [molecular mechanism](#)

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