

论著

淫羊藿苷对淀粉样β蛋白片段25-35所致大鼠学习记忆障碍的改善作用

聂晶^{1,3}, 罗勇², 黄燮南^{1,3}, 陆远富^{1,3}, 孙安盛^{1,3}, 龚其海^{1,3}, 石京山^{1,3*}

遵义医学院 1. 药理学教研室, 3. 贵州省基础药理重点实验室, 贵州 遵义 563000; 2. 贵州航天医院神经内科, 贵州 遵义 563000

收稿日期 2007-3-6 修回日期 网络版发布日期 2008-1-25 接受日期 2007-9-7

摘要 目的 观察淫羊藿苷对淀粉样β蛋白片段25-35 (Aβ₂₅₋₃₅) 所致阿尔茨海默病 (AD) 模型大鼠学习记忆能力的保护作用, 并探讨其可能的作用机制。方法 Wistar雄性大鼠, 右侧海马内注射Aβ₂₅₋₃₅ 10 μg制备AD模型, 次日起淫羊藿苷30, 60和120 mg·kg⁻¹灌胃给药, 连续14 d, d 15~19 Morris水迷宫检测大鼠空间辨别学习记忆能力; d 20检测海马组织中谷胱甘肽过氧化物酶 (GSH-PX)、超氧化物歧化酶 (SOD) 及一氧化氮合酶 (NOS) 的活性, 免疫组化法检测海马内乙酰胆碱酯酶 (AChE) 和胆碱乙酰转移酶 (ChAT) 的表达。结果 与模型对照组比较, 淫羊藿苷给药14 d明显改善大鼠学习记忆能力; 海马组织中SOD和GSH-PX活性升高, NOS活性降低; 海马内AChE及ChAT的表达增加。结论 淫羊藿苷可以改善Aβ₂₅₋₃₅海马内注射所致AD模型大鼠的学习记忆能力, 其作用可能与其增加AChE和ChAT表达, 增强SOD和GSH-PX等自由基清除酶活性, 降低NOS活性, 减少NO释放等多种机制, 促进胆碱能递质系统功能的恢复有关。

关键词 淫羊藿苷 淀粉样β蛋白 学习 记忆 胆碱O-乙酰转移酶 乙酰胆碱酯酶 超氧化物歧化酶 谷胱甘肽过氧化物酶

分类号 R971

Protective effects of icariin on learning and memory dysfunction induced by amyloid β-protein fragment 25-35

NIE Jing^{1,3}, LUO Yong², HUANG Xie-Nan^{1,3}, LU Yuan-Fu^{1,3}, SUN An-Sheng^{1,3}, GONG Qi-Hai^{1,3}, SHI Jing-Shan^{1,3*}

1. Department of Pharmacology, 3. the Key Laboratory of Basic Pharmacology of Guizhou Province, Zunyi Medical College, Zunyi 563000, China; 2. Department of Neurology, Guizhou Aerospace Hospital, Zunyi 563000, China

Abstract

AIM To investigate the protective effects of icariin on the learning and memory abilities in Alzheimer's disease (AD) model rats, and explore its potential mechanisms. **METHODS** AD model was induced by hippocampus-injection with amyloid β-protein fragment 25-35 (Aβ₂₅₋₃₅) 10 μg. From the next day, icariin 30, 60 or 120 mg·kg⁻¹ was administered by gavage for 14 d. The abilities of spatial learning and memory were tested by Morris water maze from d 15 to d 19. The expressions of acetylcholinesterase (AChE) and choline acetyltransferase (ChAT) in hippocampus were detected by immunohistochemistry and quantitated analysis by BI2000 image analysis system. The activities of nitric oxide synthase (NOS), superoxide dismutase (SOD) and glutathione peroxidase (GSH-PX) in hippocampus were assayed by photochemical method in d 20. **RESULTS** Compared with AD model rats, icariin treatments significantly caused the decreases in escape latency and searching distance in the Morris water maze test, increased the expressions of AChE and ChAT, enhanced the activities of SOD and GSH-PX, and decreased the activity of NOS in hippocampus. **CONCLUSION** Icariin can improve the learning and memory abilities in Aβ₂₅₋₃₅ induced AD rats. The mechanisms may be related to its improving effect on the cholinergic transmitter metabolism of central nervous system, resulted from increment of AChE and ChAT expressions, anti-oxidative capability and inhibitory activity of NOS.

Key words icariin amyloid β-protein learning memory choline O-acetyltransferase acetylcholinesterase superoxide dismutase glutathione peroxidase

DOI:

扩展功能

本文信息

- ▶ [Supporting info](#)
 - ▶ [PDF\(721KB\)](#)
 - ▶ [\[HTML全文\]\(0KB\)](#)
 - ▶ [参考文献](#)
- #### 服务与反馈
- ▶ [把本文推荐给朋友](#)
 - ▶ [加入我的书架](#)
 - ▶ [加入引用管理器](#)
 - ▶ [复制索引](#)
 - ▶ [Email Alert](#)
 - ▶ [文章反馈](#)
 - ▶ [浏览反馈信息](#)

相关信息

- ▶ [本刊中包含“淫羊藿苷”的相关文章](#)
- ▶ [本文作者相关文章](#)

· [聂晶](#)

· [罗勇](#)
· [黄燮南](#)

· [陆远富](#)

· [孙安盛](#)

· [龚其海](#)