

论著

胍基琥珀酸促进小鼠学习和记忆的作用

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摘要 采用水迷宫实验和一次性被动回避实验(跳台法和避暗法), 研究了胍基琥珀酸(14, 28和56 mg·kg⁻¹, ip)对小鼠学习和记忆的影响. 在水迷宫实验中, 给小鼠ip胍基琥珀酸56 mg·kg⁻¹, 每日1次, 连给4 d, 明显改善小鼠的记忆功能. 无论1次或连续4 d ip上述3个剂量的胍基琥珀酸对正常小鼠一次性被动回避实验均无明显影响, 但能明显对抗樟柳碱(5 mg·kg⁻¹, ip), 亚硝酸钠(125 mg·kg⁻¹, sc)和10%乙醇(10 mL·kg⁻¹, po)所引起的记忆障碍. 胍基琥珀酸的上述作用近似谷氨酸(300 mg·kg⁻¹, ip). 结果表明, 胍基琥珀酸类似谷氨酸和其他兴奋性氨基酸, 在调节学习和记忆过程中可能起一定的作用.

关键词 [胍基琥珀酸](#) [学习](#) [记忆](#) [行为, 动物](#)

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Promoting effects of guanidinosuccinic acid on learning and memory in mice

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Abstract

The effects of guanidinosuccinic acid (GSA) at three doses (14, 28, 56 mg·kg⁻¹, ip) on learning and memory in mice were studied by using water-maze test and one-trial passive avoidance test (step-down and step-through test). In water-maze test, administration of GSA at a dose of 56 mg·kg⁻¹ for continuous 4 days (once a day, ip) could significantly improve memory of mice at the fourth day. In normal mice, GSA at all three tested doses by acute and subacute (once a day, 4 days) administration had no significant effects on step-down and step-through tests, but could remarkably antagonize the memory impairment induced by anisodine (5 mg·kg⁻¹, ip), sodium nitrite (125 mg·kg⁻¹, sc) and 10% alcohol (10 mL·kg⁻¹, po) in both tests. These results suggest that GSA, like glutamate and other excitatory acids, play a role in regulation of learning and memory.

Key words [guanidinosuccinic acid](#) [learning](#) [memory](#) [behavior](#) [animal](#)

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