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综述

N-甲基-*D*-天冬氨酸受体激活在脑缺血中的神经保护及神经毒性作用研究进展

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摘要 *N*-甲基-*D*-天冬氨酸受体(NMDAR)介导的神经元兴奋毒性损伤与脑缺血发生密切相关, 但生理水平的NMDAR却具有神经保护、抵抗损伤的功能, 并且在突触可塑性及突触传递方面发挥重要作用。这种功能的双面性正是使用NMDAR拮抗剂治疗脑缺血、卒中等疾病临床效果欠佳的原因之一。深入了解NMDAR及其介导的促神经元存活或死亡信号通路在缺血性脑损伤中的作用, 在不影响促神经元存活以及突触可塑性通路前提下, 选择性地阻断NMDAR介导的神经元死亡信号通路, 是临床治疗缺血/缺氧性脑损伤、脑卒中等疾病的发展方向。本文就NMDAR激活介导的信号通路在缺血性脑损伤中的作用作一综述。

关键词 受体 *N*-甲基-*D*-天冬氨酸 信号通路 脑缺血 神经毒性

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Role of *N*-methyl-*D*-aspartate receptors activation in neuronal survival and excitotoxicity in brain ischemia

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Abstract

N-Methyl-*D*-aspartate (NMDA) receptor-mediated excitotoxicity in neuronal damage is a key pathological factor of ischemic brain injury. However, NMDA receptor activity at the physiological level can promote neuronal survival and resistance to trauma and play important roles in synaptic plasticity and transmission. This dichotomy may explain the poor tolerance and efficacy of NMDA receptor antagonists in clinical trials for excitotoxic trauma. Understanding of signaling events that mediate the opposing effects of NMDA receptor activity is important and may lead to therapeutic strategies that enable the selective blockade of pro-death signaling while sparing physiological signaling to survival and plasticity. In this review, the current understanding of the role of NMDA receptor and its pro-survival or pro-death signaling in ischemic brain injury are discussed.

Key words receptor *N*-methyl-*D*-aspartate signaling pathway brain ischemia neurotoxicity

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