

论著

NMDA受体阻断剂美金刚胺对小鼠内毒素急性肺损伤的保护作用

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摘要:

目的: 探讨NMDA受体阻断剂美金刚胺对脂多糖(LPS)诱导的小鼠急性肺损伤(ALI)的保护作用。方法: 健康成年雄性昆明小鼠随机分为正常组、美金刚胺组、ALI组和美金刚胺+ALI组。腹腔注射美金刚胺(10 mg/kg) 30 min后腹腔注射LPS(10 mg/kg)制作ALI小鼠模型。各组小鼠处理后6 h测定全肺测定湿/干重比值; 采用苏木精-伊红染色观察肺组织病理学改变, 采用比色法测定髓过氧化物酶(MPO)活性和丙二醛(MDA)含量; 采用ELISA法检测各组小鼠支气管肺泡灌洗液(BALF)中肿瘤坏死因子- α (TNF- α)含量和乳酸脱氢酶(LDH)活性。结果: 美金刚胺预处理可降低LPS诱导的ALI小鼠肺湿/干重比值, 减轻其肺组织病理学改变, 减少肺组织中MPO和MDA的含量, 同时可降低BALF中TNF- α 含量以及LDH活性(均 $P < 0.05$)。结论: 采用美金刚胺阻断NMDA受体可减轻LPS诱导的小鼠ALI, 为临床治疗ALI提供了新思路。

关键词: 急性肺损伤 NMDA受体 美金刚胺 小鼠

Protective effect of NMDA receptor antagonist emantine on acute lung injury in mice

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Abstract:

Objective: To investigate the protective effect of a non-specific NMDA receptor antagonist memantine on lipopolysaccharide (LPS)-induced acute lung injury (ALI) in mice.

Methods: Healthy male mice were divided into 4 groups: a normal group, a memantine group, anALI group and a memantine+ALI group. The ALI group was induced by intraperitoneal injection of LPS (10 mg/kg). Memantine (10 mg/kg) was injected intraperitoneally before the injection of LPS to determine the effect of blockade of NMDA receptor in the memantine+ALI group. The lung wet/dry ratio was detected. HE staining was performed to show the morphological changes in the lung tissue. Myeloperoxidase enzyme (MPO) activity and malondialdehyde (MDA) content in the lung tissue were detected. ELISA was used to detect the tumor necrosis factor- α (TNF- α) content and lactate dehydrogenase (LDH) activity in the bronchoalveolar lavage fluid (BALF). Results: Memantine pretreatment improved the LPS-induced ALI lung tissue morphological changes, reduced their lung wet/dry ratio, the levels of TNF- α and LDH activity in BALF, and also reduced the MPO and MDA content in the lung tissue.

Conclusion: Blockade of NMDA receptors can ameliorate LPS-induced mice ALI.

Keywords: acute lung injury NMDA receptor memantine mice

收稿日期 2013-12-02 修回日期 网络版发布日期

DOI: 10.11817/j.issn.1672-7347.2014.01.003

基金项目:

国家自然科学基金(81270121); 湖南省科学研究青年专项(12B132); 湖南省高校创新平台开放基金(11K076); 中南大学贵重仪器设备开放共享基金(2012-02, 2012-12)。This work was supported by National Natural Science Foundation of China (81270121), Hunan Province Science and Technology Plan, P. R. China (12B132), Innovation Fund for Institution of Higher Education of Hunan Province, P. R. China (11K076), the Open-End Fund for the Valuable and Precision Instruments of Central South University, P. R. China (2012-02, 2012-12).

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