

论文

甘草酸单铵对脂多糖致小鼠急性肺损伤的保护作用

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摘要:

采用脂多糖(lipopolysaccharide, LPS)气道滴入诱导小鼠急性肺损伤(acute lung injury, ALI)模型, 研究甘草酸单铵(monoammonium glycyrrhizinate, MAG)对ALI的防治作用及其机制。雄性ICR小鼠随机分为生理盐水(NS)对照组、MAG 3、10 及30 mg·kg⁻¹组、LPS组、地塞米松(dexamethasone, DXM) 5 mg·kg⁻¹组。MAG各组气道滴入LPS前1 h及滴入后3 h各给药1次, DXM组气道滴入LPS前1 h给药1次。LPS气道滴入后6 h处死动物, 测定各组的肺湿重/干重比、肺通透性、肺组织中中性粒细胞髓过氧化物酶(myeloperoxidase, MPO)含量、ELISA法检测肺组织匀浆TNF- α 、IL-10含量, 常规细胞形态学检测中性粒细胞在支气管肺泡灌洗液(bronchoalveolar lavage fluid, BALF)中的比例和肺组织病理改变。结果表明, MAG剂量依赖性减轻气道内滴入LPS诱导的小鼠ALI程度, 降低肺湿重/干重比及肺组织伊文斯蓝的渗出, 降低BALF中白细胞总数和中性粒细胞数比例, 抑制组织MPO的释放, 降低肺组织匀浆TNF- α 的含量, 增加肺组织IL-10的释放。以上结果提示, MAG可能通过调节TNF- α /IL-10的平衡而有效保护脂多糖诱导的急性肺损伤。

关键词: 急性肺损伤 甘草酸单铵 脂多糖 肿瘤坏死因子 α 白细胞介素10 髓过氧化物酶 中性粒细胞

Protective effect against monoammonium glycyrrhizinate on lipopolysaccharide-induced acute lung injury in mice

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Abstract:

The aim of this study is to investigate the effect of monoammonium glycyrrhizinate (MAG) on lipopolysaccharide (LPS)-induced acute lung injury (ALI) and its anti-inflammatory mechanism in mice. All male ICR mice were randomly divided into six groups: LPS group; control group; MAG 3, 10, and 30 mg·kg⁻¹ groups; and dexamethasone (DXM) 5 mg·kg⁻¹ group. Lung dry weight and wet weight percentage and permeability were detected. Neutrophil infiltration in bronchoalveolar lavage fluid (BALF) and lung tissues was detected by cell count and morphological analysis. The levels of TNF- α and IL-10 in lung were detected by ELISA. MPO activity was determined followed the specification. MAG induced a decrease in lung wet weight/dry weight ratio, and significantly decreased in total leucocyte number and neutrophil percentage in the BALF, and MPO activity of lung in a dose-dependent manner. Importantly, It could up-regulate the IL-10 level and down-regulate the TNF- α level in the lung tissue of ALI mice. These results suggested that the protective effect of MAG in mice on LPS induced ALI was associated with the regulation of TNF- α /IL-10 balance, and MAG maybe a potentially treatment for ALI/ARDS.

Keywords: monoammonium glycyrrhizinate lipopolysaccharide tumor necrosis factor- α interleukin-10 myeloperoxidase neutrophil acute lung injury

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