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论著

内毒素性急性肺损伤大鼠内源性H2S/CSE体系的变化

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摘要 目的：观察内毒素性急性肺损伤（ALI）大鼠内源性硫化氢/胱硫醚-γ-裂解酶（H2S/CSE）体系、IL-1β和IL-10的动态变化。

方法:健康雄性SD大鼠共80只，随机分为Ⅰ（对照）组；Ⅱ（LPS 1 h）组；Ⅲ（LPS 3 h）组；Ⅳ（LPS 6 h）组；Ⅴ（LPS 9 h）组；Ⅵ（LPS 12 h）组。给予LPS复制内毒素性ALI大鼠模型，分别于1、3、6、9、12 h处死，观察光镜和电镜下肺组织形态学改变，检测肺系数、肺湿/干重比、血浆中H2S含量、肺组织CSE活性、血清中IL-1β和IL-10的动态变化。

结果:⑴LPS 1 h组，光镜和电镜下肺组织形态学无明显改变，肺系数、肺湿/干重比、血浆中H2S的含量和肺组织CSE活性与对照组比较无明显变化，血清中IL-1β和IL-10含量明显高于对照组(IL-1β，P<0.05；IL-10，P<0.01)。⑵LPS 3、6、9、12 h组，光镜和电镜下肺组织明显受损，超微结构明显改变，肺系数和肺湿/干重比明显高于对照组(P<0.05或P<0.01)，血浆中H2S的含量和肺组织CSE活性明显低于对照组（P<0.05 或P<0.01），血清中IL- 1β和IL-10的含量明显高于对照组(P<0.01)。

结论:内源性H2S/CSE体系、IL-β和IL-10参与内毒素性ALI的病理生理过程。

关键词 脂多糖类； 急性肺损伤； 硫化氢； 白细胞介素1； 白细胞介素10

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Change of endogenous hydrogen sulfide/cystathionine-γ-lyase system in acute lung injury induced by LPS in rats

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Abstract

<FONT face=Verdana>AIM: To observe the changes of endogenous hydrogen sulfide/cystathionine-γ-lyase (H2S/CSE) system while acute lung injury induced by LPS in rats.
METHODS: Eighty rats were randomly divided into six groups (n=8): Ⅰ, control group; Ⅱ, LPS 1 h group; Ⅲ, LPS 3 h group; Ⅳ, LPS 6 h group; Ⅴ, LPS 9 h group; Ⅵ, LPS 12 h group. The ALI model of rats was prepared with LPS. The rats were respectively killed at 1, 3, 6, 9 or 12 h after administration of LPS. The morphological changes of lung tissues were observed by light and electron microscope. The lung coefficient and the wet-to-dry weight ratio were measured. The contents of IL-1β and IL-10 in serum, the H2S level in plasma and the CSE activity in lung tissue were respectively detected.
RESULTS: ⑴ In LPS 1 h group, the morphology, the lung coefficient, the wet-to-dry weight ratio, the H2S level and the CSE activity showed no changes compared with the control group. The contents of IL-1β and IL-10 were increased compared with the control group (IL-1β, P<0.05;IL-10, P<0.01). ⑵ In LPS 3 h, 6 h, 9 h and 12 h groups, compared with the control group, the lung tissues were significantly damaged, the lung coefficient and the wet-to-dry weight ratio were significantly increased respectively (LPS 3 h, P<0.05; LPS 6 h, 9 h, 12 h, P<0.01). The contents of IL-1β and IL-10 in serum were markedly increased (P<0.01). The H2S level in plasma and the CSE activity in lung tissue were significantly decreased (P<0.01).CONCLUSION: The changes of inflammatory cytokines may be the pathological foundation of the ALI induced by LPS and the endogenous hydrogen sulfide/cystathionine-γ-lyase system is possibly involved in the formation of the ALI.</FONT>

Key words Lipopolysaccharides Acute lung injury Hydrogen sulfide Interleukin-1 Interleukin-10

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