

实验研究报道

胚胎干细胞治疗博来霉素诱导的小鼠肺纤维化的研究

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收稿日期 修回日期 网络版发布日期 接受日期

摘要

目的 研究静脉注射胚胎干细胞(ESC)对肺纤维化小鼠的治疗作用。方法 气管内滴注博来霉素8.5mg/kg制作C57/BL6雌性小鼠的肺纤维化模型。治疗组(n=20)静脉注射S8小鼠ESC, 对照组(n=10)注射生理盐水。治疗组又分为单次治疗(n=10)和重复治疗(n=10), 两者均在造模后1h静脉注射ESC, 重复治疗组在造模后3d再次静脉注射ESC。记录小鼠的生存时间, 测定小鼠肺组织的羟脯氨酸含量, 肺脏病理学观察炎症状态。利用秩和检验统计3组小鼠生存时间, 方差分析3组小鼠肺羟脯氨酸含量的差异。结果 接受干细胞治疗后, 肺纤维化模型小鼠的生存时间(d)延长, 重复治疗组更加明显(对照组、单次治疗组、重复治疗组分别为7.8±2.8、8.4±3.8、13.5±5.6, P<0.01); 肺羟脯氨酸含量(μg/mL)降低 [对照组、单次治疗组、重复治疗组分别为(8.59±1.14)、(8.23±1.09)、(5.51±0.39), P<0.01]; 肺脏病理检查显示肺组织炎症程度降低, 结构破坏减轻。结论 静脉注射胚胎干细胞可以减轻博来霉素诱导的小鼠肺部炎症和肺纤维化, 延长肺纤维化小鼠的生存时间。

关键词 [特发性肺纤维化](#); [胚胎干细胞](#); [羟脯氨酸](#)

分类号

The treatment of embryonic stem cell to pulmonary fibrosis in mouse induced by bleomycin

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Abstract

Objective To observe the effect of embryonic stem cell (ESC) on mice model of pulmonary fibrosis induced by bleomycin. Methods Pulmonary fibrosis was induced in C57/BL6 mice by bleomycin drop-in to trachea. Intravenous ESC were injected in treatment group 2 and 3 (n=10 in each group) 1 hour after bleomycin exposure. Sodium Chloride was injected in another 10 mice as control in group 1. Mice in group 3 received ESC repeatedly 3 days after bleomycin exposure. The life-spans and hydroxyproline concentrations were examined. The pulmonary inflammation of mice in deferent groups were observed by pathological method. Kruskal-Wallis test and ANOVA were used to tell deference among three groups. Results The life-spans of mice were significantly (P<0.01) longer in treatment group 2 (8.4±3.8 days) and group 3 (13.5±5.6 days) than those in control group 1 (7.8±2.8days). Meanwhile, the hydroxyproline concentration in group 2 [(8.23±1.09) μg/mL] and group 3 [(5.51±0.39) μg/mL] decreased significantly (P<0.01) than those in control group 1 [8.59±1.14μg/mL]. Pathological examination showed that inflammation in lungs of treatment group 2 and 3 was less severe than that in control group 1. Conclusions ESC injection may inhibit pulmonary inflammation and fibrosis induced by bleomycin in C57/BL6 mice and can lengthen lifetime of the mice.

Key words [idiopathic pulmonary fibrosis](#) [embryonic stem cell](#) [hydroxyprolin](#)

DOI:

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