中国药理学与毒理学杂志 2012 26 (1): 68-72 ISSN: 1000-3002 CN: 11-1115/R

论著

五味子乙素抑制染二氧化硅大鼠肺组织环氧合酶-2 mRNA和前列腺素E_2表达

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收稿日期 2011-3-16 **修回日期** **网络版发布日期** 2012-2-24 **接受日期** 2011-8-1

摘要 **目的** 探讨五味子乙素（Sch-B）抑制矽肺纤维化的作用及机制。**方法** 采用一次性气管内注入1 ml二氧化硅（SiO_2）混悬液法制备大鼠矽肺模型，染尘后第1天起开始ig给予Sch-B 80 μg·g^{-1}·d^{-1}，连续28 d。分别给予Sch-B后3，7，14和28 d，取肺采用HE染色观察病理变化；酶联免疫吸附试验（ELISA）测定肺组织前列腺素E_2（PGE_2）含量；免疫组织化学检测肺组织环氧合酶-2（COX-2）蛋白表达；逆转录聚合酶链式反应（RT-PCR）方法检测肺组织COX- 2 mRNA的表达。**结果** HE染色结果显示，染SiO_2组肺损伤明显，早期表现为明显的肺泡炎，大量炎症细胞浸润，后期肺组织以胶原沉积和肺纤维化改变为主。Sch-B组肺泡炎和肺纤维化程度均较同期染SiO_2组明显减轻。染SiO_2组各时间点大鼠肺组织PGE_2含量均显著高于正常对照组(3，7，14和28 d组分别增加了1.2，0.9，1.0和1.1倍）（P<0.01）；Sch-B干预3，7，14和28 d组PGE_2含量均低于染SiO_2组，分别显著减少了41.7%，38.1%，36.4%和47.6%（P<0.01或P<0.05）。染SiO_2后，COX-2蛋白表达明显增强，Sch-B干预后COX-2蛋白表达有所减弱。染SiO_2 3，7，14和28 d组大鼠肺内COX-2 mRNA表达均高于正常对照组，分别明显增加了1.3，1.6，1.3和1.7倍（P<0.05，P<0.01）；Sch-B干预3，7，14和28 d组COX-2表达均低于染SiO_2组，分别减少了44.4%，46.8%，41.7%和41.5%，差异有统计学意义（P<0.05，P <0.01）。**结论** Sch-B对染SiO_2大鼠肺损伤的保护效应可能与抑制肺组织COX-2表达及PGE_2的诱导性合成与释放有关。

关键词 五味子乙素 二氧化硅 前列腺素E2 环氧合酶-2

分类号 R285

Inhibitory effect of schisandrin B on cyclooxygenase-2 expression and prostaglandin E_2 content in lungs of rats exposed to silica

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Abstract

OBJECTIVE To explore the intervention mechanism of schisandrin B (Sch-B) on pulmonary fibrosis in silicotic rats. **METHODS** Silicotic animal models were established by direct tracheal instillation of silica only once into rat lungs surgically. From the first day after silica injection, rats were orally given Sch-B 80 μg·g^{-1}·d^{-1} for 28 d. At 3, 7, 14 and 28 d, pathological changes of the lung were observed by HE staining. The PGE_2 content in lung homogenates was measured by enzyme-linked immuno sorbent assay (ELISA). Cyclooxygenase-2(COX-2) protein expression in lung tissue was detected by immunohistochemistry. COX-2 mRNA expression was detected by reverse transcription-polymerase chain reaction (RT-PCR). **RESULTS** HE staining showed that lung injury was obvious in silica group. There was alveolus inflammation, infiltration of lots of inflammation cells in the early stage and hyperplasia of collagen and pulmonary fibrosis predominating in the late stage. The alveolar inflammation and pulmonary fibrosis were mitigated more obviously in the Sch-B group than in silica group. Compared with normal control group, the PGE_2 content in silica group was significantly higher (at 3, 7, 14 and 28 d increased 1.2, 0.9, 1.0 and 1.1 times, respectively) （P<0.01）. Compared with silica group, the PGE_2 content of Sch-B group was significantly lower (decreased by 41.7%, 38.1%, 36.4% and 47.6% at 3, 7, 14 and 28 d, respectively)(P<0.01 or P<0.05). Immunohistochemistry sections showed that Sch-B decreased COX-2 expression compared with the silica group. The expression of COX-2 mRNA in silica group was significantly higher than the normal control group(increased 1.3, 1.6, 1.3 and 1.7 times at 3,

7, 14 and 28 d, respectively)(P <0.01 or P<0.05). The expression of COX-2 mRNA in Sch-B group was significantly lower than silica group(decreased by 44.4%, 46.8%, 41.7% and 41.5% at 3, 7, 14 and 28 d, respectively)(P<0.05, P<0.01). **CONCLUSION** The protective effect of Sch-B on silica- induced pulmonary injury is probably related to its ability to reduce COX-2 mRNA expressions and inhibit the PGE_2 content.

Key words schisandrin B silica prostaglandin E2 cyclooxygenase-2

DOI: 10.3867/j.issn.1000-3002.2012.01.014

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