

论著

5-羟基癸酸盐对低氧大鼠肺动脉平滑肌细胞转化生长因子 β_1 表达的抑制作用

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摘要 目的 探讨5-羟基癸酸盐(5-HD)降低低氧性肺动脉高压的作用机制。方法 雄性SD大鼠每天(10.0±0.5)%O₂处理8 h, 连续7 d后, sc给予5-HD 5 mg·kg⁻¹后再进行同样的低氧处理, 每天1次, 连续21 d。测定右心室肥厚指数(RVHI), 右心导管法测肺动脉平均压(mPAP); 分别用ELISA法检测肺组织、免疫组化法检测肺动脉和支气管上皮中转化生长因子 β_1 (TGF- β_1)的表达。结果与正常对照组比较, 低氧模型组的mPAP, RVHI 及TGF- β_1 在肺动脉及支气管上皮细胞中的表达均明显升高($P<0.05$), TGF- β_1 在肺组织中表达无明显升高。与低氧模型组相比, 5-HD 5 mg·kg⁻¹组肺动脉平滑肌mPAP和TGF- β_1 表达明显下降($P<0.05$); 但RVHI及TGF- β_1 在肺组织及支气管上皮细胞中的表达无明显变化。结论 5-HD可能是通过TGF- β_1 信号通路发挥抗肺动脉平滑肌细胞的增殖作用而减轻肺动脉高压。

关键词 [线粒体ATP敏感性钾通道](#) [转化生长因子](#) [肺动脉高压](#)

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Inhibitory effect of 5-hydroxydecanoate on transforming growth factor-beta 1 expression in pulmonary artery smooth muscle cells in hypoxic rats

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Abstract

OBJECTIVE To explore the effect and mechanism of 5-hydroxydecanoate (5-HD) on hypoxic pulmonary artery hypertension. **METHODS** Adult male SD rats were exposed to hypoxia with O₂ (10.0±0.5)% for 8 h, once daily, for 7 d, and then sc given 5-HD 5 mg·kg⁻¹, once a day, for 21 d. The right ventricular hypertrophy index(RVHI) and mean pulmonary artery pressure (mPAP) were measured by right cardiac catheter. Expression of transforming growth factor β_1 (TGF- β_1) in lung tissue was tested by enzyme linked immunosorbent assay(ELISA) while TGF- β_1 expression in the pulmonary artery and bronchial epithelial cells was detected by immunohistochemical staining assay. **RESULTS** Compared with normal control group, mPAP, RVHI and TGF- β_1 in pulmonary artery and bronchial epithelial cells in hypoxic group were significantly increased($P<0.05$), but there was no significant difference in TGF- β_1 expression in lung tissue. Compared with hypoxic model group, mPAP and TGF- β_1 expression in the smooth muscle of the pulmonary artery in 5-HD group were significantly decreased ($P<0.05$). However, there was no significant difference in RVHI and TGF- β_1 expression in lung tissue and bronchial epithelial cells. **CONCLUSION** 5-HD could reduce pulmonary hypertension mediated by

扩展功能

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