

 中文标题 检索 跨刊检索

小檗碱对早期糖尿病肾病大鼠肾组织TGF- β 1/SnoN表达失衡及其Smad信号通路的调控作用

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中文摘要:目的: 研究小檗碱(BBR)对糖尿病肾病(DN)大鼠肾组织TGF- β 1/SnoN表达失衡及其Smad信号通路的调控作用, 探讨BBR对DN大鼠早期肾脏损伤的作用及其可能机制。方法: 以链脲佐菌素(STZ)复制早期DN大鼠模型, 动物分为正常对照组、模型组、B-RR低、中、高剂量(50, 100, 200 mg \cdot kg⁻¹)治疗组及阳性对照(依那普利1 mg \cdot kg⁻¹)治疗组, 灌胃给药, 每日1次, 5周后检测大鼠空腹血糖(FBG)、尿素氮(BUN)、血肌酐(Scr)、24 h尿蛋白(24 h Upro)及24 h尿微量白蛋白(24 h UmAlb); 光镜观察肾组织形态学的改变; 免疫组织化学检测肾组织TGF- β 1, SnoN, Smad2/3与Smad7蛋白表达; 逆转录聚合酶链反应(RT-PCR)检测肾组织TGF- β 1 mRNA表达。结果: 与模型组比较, BBR各治疗组大鼠FBG, BUN, Scr, 24 h Upro及24 h UmAlb水平显著降低, 肾组织形态学异常改善, TGF- β 1蛋白及mRNA和Smad2/3蛋白表达显著减少, SnoN和Smad7蛋白表达显著增加。结论: BBR可通过Smad信号通路来维持DN肾组织TGF- β 1/SnoN表达的动态平衡, 从而改善早期DN大鼠肾功能病变, 延缓DN的发生与发展。

中文关键词: 小檗碱 糖尿病肾病 TGF- β 1 SnoN Smad信号通路

Regulatory effect of berberine on unbalanced expressions of renal tissue TGF- β 1/SnoN and Smad signaling pathway in rats with early diabetic nephropathy

Abstract: Objective: To investigate the effect of berberine (BBR) on unbalanced expression of renal tissue TGF- β 1/SnoN and Smad signal pathway in rats with early diabetic nephropathy (DN), and discuss BBR's effect on DN rats with early diabetic nephropathy and its possible mechanism. **Method:** DN rat model were established by injecting streptozotocin (STZ). The rats were divided into six groups: the control group, the model group, three BBR (50, 100, 200 mg \cdot kg⁻¹) treatment groups and the enalapril treatment group. They were orally administered once a day for five weeks. The fasting blood glucose (FBG), blood urea nitrogen (BUN), serum creatinine (Scr), urinary protein (24 h Upro) and urinary microalbumin (24 h UmAlb) were tested. The pathological changes in renal tissues were examined by optical microscopy. Immunohistochemical measures were used to detect the expressions of TGF- β 1, SnoN, Smad2/3 and Smad7 protein, and RT-PCR was used to detect TGF- β 1 mRNA in renal tissues. **Result:** Compared with the model group, BBR-treated groups showed significant decrease in FBG, BUN, Scr, 24 h Upro, 24 h UmAlb, TGF- β 1 protein, mRNA and Smad2/3 protein, abnormal morphological improvement in renal tissues, and notable increase in the expressions of SnoN and Smad7 protein. **Conclusion:** BBR can maintain the dynamic balance in TGF- β 1/SnoN expression in renal tissues through Smad signaling pathway, so as to mitigate renal functional disorder in DN rats and delay DN and its development.

keywords: berberine diabetic nephropathy TGF- β 1 SnoN Smad signaling pathway

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