

论文

葛根素对糖尿病大鼠肾功能及肾组织MMP-2与TIMP-2表达的影响

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摘要:

目的探讨葛根素对糖尿病大鼠肾功能及肾组织基质金属蛋白酶2 (MMP-2) 及其组织抑制剂2 (TIMP-2) 表达的影响。方法单侧肾切除大鼠链脲佐菌素诱发糖尿病模型。用原位杂交法检测肾小球MMP-2及TIMP-2 mRNA表达, 流式细胞术和免疫组织化学检测肾皮质TGFβ1, MMP-2, TIMP-2, IV型胶原及层粘连蛋白表达。结果 糖尿病组较对照组肾小球MMP-2 mRNA及蛋白表达降低而TIMP-2 mRNA及蛋白表达升高, TGFβ1, IV型胶原及层粘连蛋白表达亦增加, 肾功能恶化; 葛根素用药组较糖尿病组肾小球MMP-2 mRNA及蛋白表达升高, 而TGFβ1, TIMP-2, IV型胶原及层粘连蛋白表达减少, 肾功能改善。结论葛根素对糖尿病大鼠肾功能具有保护作用, 除降低血糖外, 调节肾小球MMP-2及TIMP-2表达, 从而减轻肾小球细胞外基质沉积也可能是其作用途径之一。

关键词: 葛根素 糖尿病肾病 基质金属蛋白酶-2 基质金属蛋白酶组织抑制剂-2

Effects of puerarin on renal function, expressions of MMP-2 and TIMP-2 in diabetic rats

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Abstract:

Aim To investigate the effect of puerarin on expressions of MMP-2 and TIMP-2 in the kidney of diabetic rats. Methods Uninephrectomized male Wistar rats were used to induce diabetes by intraperitoneal injection of streptozocin (65 mg·kg⁻¹). Puerarin was given daily by intraperitoneal injection from the third day of induction of diabetes for 16 weeks. Using *in situ* hybridization and immunohistochemistry to detect MMP-2, TIMP-2 mRNA expressions and MMP-2, TIMP-2, collagen IV and Laminin expressions in diabetic kidneys with image analysis system, Flow cytometry was used to detect the expressions of TGFβ1, MMP-2 and TIMP-2. Results Compared with those in kidneys of control group, expressions of MMP-2 mRNA and proteins were lower, while the expressions of both TGFβ1 and TIMP-2 were higher in the diabetic kidney (P<0.05). The level of MMP-2 expression was advanced, while expression of TIMP-2 was reduced by puerarin treatment (P<0.05). Conclusion Puerarin showed some renal protective effect on diabetic nephropathy, partly through inhibition of excessive deposition of glomeruli extracellular matrix by up-regulating MMP-2 and down-regulating TIMP-2 expressions besides reducing the blood glucose.

Keywords: diabetic nephropathy matrix metalloproteinase-2 tissue inhibitor of metalloproteinase-2 puerarin

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