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丹芪合剂下调糖尿病肾病大鼠肾组织Akt1的表达

Danqi Mixture Down-regulates Akt1 Expression of Kidney Tissue in Diabetic Rats

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中文关键词: 糖尿病肾病 Akt1 上皮细胞-间充质细胞转化 丹芪合剂 依那普利

英文关键词: diabetic nephropathy Akt1 epithelial mesenchymal transition Danqi Mixture Enalapril

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中文摘要:

目的: 观察丹芪合剂对糖尿病大鼠肾组织蛋白激酶B (PKB/Akt1)表达的影响,探讨其保护肾脏的机制。 方法: SD大鼠随机分为正常对照组、糖尿病模型组、糖尿病丹芪合剂组(2 g·kg^{-1})和依那普利组(10 mg·kg^{-1})。单次尾静脉注射链脲佐菌素复制糖尿病模型。生化方法检测血糖、尿蛋白和血肌酐。免疫组化检测肾组织Akt1、E-钙黏素(E-cadherin)、纤维连接蛋白(FN)蛋白表达;Western blot检测α-平滑肌肌动蛋白(α-SMA)蛋白水平;RT-PCR检测Akt1 mRNA水平。 结果: 丹芪合剂明显降低DM大鼠肾组织Akt1蛋白和mRNA表达($P<0.01$);同时上调E-cadherin蛋白表达并下调α-SMA表达,使FN沉积减少($P<0.01$);降低DM大鼠血肌酐和尿蛋白水平($P<0.05$)。丹芪合剂组与依那普利组之间无统计学差异。 结论: 丹芪合剂可能通过抑制Akt信号分子,进而抑制上皮细胞-间充质细胞转化,减少FN沉积,对糖尿病大鼠肾脏起保护作用。

英文摘要:

Objective: This research was aimed at observing the effect of the Danqi Mixture on the expression of Akt1 in kidney tissue of diabetic rats and exploring it's mechanism of renal protection. Method: Healthy male Sprague-Dawley rats were divided into normal group (A), diabetic model group (B), diabetic group treated with Danqi (C) and Enalapril group (D) randomly. Diabetic rat model was induced using injection of 50 mg·kg^{-1} streptozotocin(STZ). Rats of each group were killed at the 12th week. Biochemistry assay was employed to assess the urine protein and serum creatinine. The protein expressions of Akt1, E-cadherin and fibronection(FN) in renal tissue were measured using immunohistochemistry, meanwhile α-smooth actin(α-SMA) protein expression level was detected by Western blot. The mRNA level of Akt1 in renal cortex was examined by Reverse Transcriptose Polymerase Chain Reaction(RT-PCR). Result: Danqi mixture and enalapril down-regulated mRNA and protein expression of Akt1, and decreased protein expressions of α-SMA and FN ($P<0.01$), along with significantly increased level of E-cadherin protein in renal tissue diabetic rats ($P<0.01$). Comparing to the normal group, the levels of proteinuria, serum creatinine in Danqi Mixture group were remarkably decreased as well ($P<0.05$). Conclusion: Danqi Mixture could inhibit epithelial-mesenchymal transition(EMT) and improve the injury of diabetic kidney, which might associate with the down-regulation of Akt1 mRNA and protein expression.

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