

论著

抗纤灵方对单侧输尿管梗阻大鼠TGF-β₁-Smad通路的影响

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摘要 目的: 研究中药复方抗纤灵对单侧输尿管梗阻(UUO)所致肾纤维化大鼠TGF-β₁-Smad通路的影响, 借以初步探讨其发挥疗效的作用机制。

方法: 雄性SD大鼠18只随机分为3组, 假手术组、模型组、中药治疗组。用单侧输尿管结扎术建立大鼠肾纤维化模型, 抗纤灵治疗两周后检测梗阻肾羟脯氨酸含量; HE染色和电镜观察肾组织病变; 采用RT-PCR检测肾组织TGF-β₁ mRNA水平; 蛋白免疫印迹法检测肾组织转化生长因子I型受体(TβRI)、转化生长因子II型受体(TβRII)、Smad2蛋白表达及磷酸化变化。

结果: 与假手术组比较, 模型组大鼠梗阻肾羟脯氨酸含量明显增多; 病理观察可见肾小球毛细血管基底膜明显增厚, 间质成纤维细胞和胶原沉积明显增多; 肾组织TGF-β₁ mRNA及TβRI、TβRII蛋白表达显著增多, Smad2蛋白磷酸化及总蛋白表达水平均显著增多。与模型组比较, 中药干预组大鼠梗阻肾羟脯氨酸含量明显减少; 肾小球和肾小管基底膜仅见轻度增厚, 间质成纤维细胞和胶原沉积较模型组减轻; 肾组织TβRI、TβRII蛋白表达明显下调, Smad2蛋白磷酸化及总蛋白表达水平均明显下调。

结论: 抗纤灵可抑制单侧输尿管梗阻大鼠TGF-β₁-Smad通路, 抑制梗阻肾TβRI、TβRII、Smad2蛋白表达及Smad2蛋白磷酸化, 从而改善梗阻性大鼠的肾间质纤维化, 减少纤维化肾脏中胶原蛋白含量。

关键词 [中草药](#) [输尿管梗阻](#) [转化生长因子β](#); [蛋白质Smad2](#)

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Effect of Kang Xianling decoction on TGF-β₁-Smad pathway in a unilateral ureteral obstruction rat model

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Abstract

AIM: To study the effect of Kang Xianling decoction,comprised of dahuang,danshen,taoren,niuxi and danggui,on TGF-β₁-Smad pathway in unilateral ureteral obstruction rat model.
METHODS: Eighteen male SD rats were divided into 3 groups,sham group,model group and model group treated with Kang Xianling decoction randomly.Renal interstitial fibrosis model was established in rats by unilateral ureteral obstruction (UUO).After treatment for additional 14 d,parameters of hydroxyproline in obstructed kidney from 3 groups were analyzed.Rats were sacrificed and the pathological statuses of their kidneys were checked by HE staining and electron microscopy.Transforming growth factor-β₁ (TGF-β₁) mRNA in kidney tissue was determined by RT-PCR.TGF-β₁ receptor I (TβR I),TGF-β₁ receptor II (TβR II),phosphorylated Smad2 and Smad2 protein were determined by Western blotting.
RESULTS: Parameters of hydroxyproline in animals of model group were significantly increased than those in sham operation group (P<0.05).The mRNA expression of TGF-β₁ and the protein expression of TβR I,TβR II,phosphorylated Smad2 and Smad2 in kidney tissue of animals in model group were significantly up-regulated.After intervention with Kang Xianling decoction,the above-mentioned up-regulated parameters,except TGF-β₁,were all significantly inhibited.Compared to model group,the

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pathological changes in renal tissues in treatment group were remarkable improved.
CONCLUSION: Kang Xianling decoction inhibits the TGF- β ₁-Smad pathway and the protein expression of T β R I ,T β R II ,phosphorylated Smad2 and Smad2,so as to decrease the level of collagen in obstructed kidney and to alleviate the renal interstitial fibrosis in UUO rats.

Key words [Drugs](#) [Chinese herbal](#) [Ureteral obstruction](#) [Transforming growth factor beta](#) [Protein Smad2](#)

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