

论著

## 白芍总苷对糖尿病大鼠肾组织氧化应激的影响

方芳, 吴永贵\*, 董婧, 任克军, 齐向明, 梁超, 张炜

(安徽医科大学第一附属医院肾脏内科, 安徽 合肥 230022)

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**摘要** 目的 探讨白芍总苷(TGP)对糖尿病肾病的治疗作用及其可能的作用机制。方法 采用链佐星(STZ)诱导大鼠糖尿病模型。大鼠随机分为对照组、糖尿病模型组、TGP组(50, 100和200 mg·kg<sup>-1</sup>, ig, 每天1次, 共8周)。8周后检测肾组织总抗氧化能力(T-AOC)、超氧化物歧化酶(SOD)、过氧化氢酶(CAT)和谷胱甘肽过氧化物酶(GSH-PX)活性, 应用Western蛋白印迹法检测肾组织硝基酪氨酸(NT)蛋白的表达, 免疫组化方法检测肾组织转化生长因子β1(TGFβ1)蛋白的表达。结果 与对照组相比, 模型组肾组织T-AOC, SOD和CAT活性明显降低; TGP 200 mg·kg<sup>-1</sup>给药组T-AOC, SOD和CAT活性明显高于模型组。模型组肾组织NT蛋白表达较对照组增加3.4倍, 给予TGP 50, 100和200 mg·kg<sup>-1</sup> 8周可分别使肾组织NT蛋白表达下降41.2%, 43.8%和57.5%。模型组肾组织TGFβ1蛋白表达明显高于对照组, TGP 50, 100和200 mg·kg<sup>-1</sup>组TGFβ1蛋白表达明显低于模型组。结论 糖尿病大鼠肾脏存在氧化应激反应, TGP抗糖尿病肾病的作用可能与其抗氧化活性有关。

**关键词** [白芍药](#) [葡萄糖苷类](#) [糖尿病肾病](#) [氧化性应激](#) [硝基酪氨酸](#) [转化生长因子β1](#)

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## Effects of total glucosides of paeony on oxidative stress in renal tissue of diabetic rats

FANG Fang, WU Yong-Gui\*, DONG Jing, REN Ke-Jun, QI Xiang-Ming, LIANG Chao, ZHANG Wei

(Department of Nephrology, the First Affiliated Hospital, Anhui Medical University, Hefei 230022, China)

### Abstract

**AIM** To study the effect of total glucosides of paeony (TGP) on diabetic nephropathy and explore the possible mechanism. **METHODS** Diabetes rat model was induced by ip streptozocin (STZ). Rats were randomly divided into 5 groups: control group, diabetes model group and 3 doses of TGP treated groups (50, 100 and 200 mg·kg<sup>-1</sup>, respectively, ig, once daily for 8 weeks). The activities of total antioxidative capacity (T-AOC), superoxide dismutase (SOD), catalase (CAT) and glutathione peroxidase (GSH-PX) in the renal tissue were determined. Expressions of nitrotyrosine (NT) and transforming growth factor β1 (TGFβ1) proteins were measured by using Western blot analysis or immunohistochemistry method. **RESULTS** The T-AOC, SOD and CAT activities in renal tissue of model group significantly decreased compared with that of control group. TGP treatment with 200 mg·kg<sup>-1</sup> increased the T-AOC, SOD and CAT activities. The expression of NT protein in renal tissue of model group increased by 3.4 folds to that of control group. TGP treatment with 50, 100 and 200 mg·kg<sup>-1</sup> reduced the increased expression of NT protein by 41.2%, 43.8% and 57.5%, respectively. The expression of TGFβ1 protein in renal tissue of model group significantly increased compared with control group, which was all significantly inhibited by TGP treatment with 50, 100 and 200 mg·kg<sup>-1</sup>, respectively. **CONCLUSION** The oxidative stress is increased in the diabetic rat kidneys, and TGP can prevent renal damage associated with diabetes by attenuating the oxidative stress.

**Key words** [Paeonia lactiflora Pall.](#) [glucosides](#) [diabetic nephropathies](#) [oxidative stress](#) [nitrotyrosine](#) [transforming growth factor β1](#)

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通讯作者 吴永贵 [wygxl@ah163.com](mailto:wygxl@ah163.com)

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