

Asiaticoside Ameliorates Kidney Injury in Diabetic Rats by Resisting Oxidative Stress and Inhibiting Apoptosis

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SUMMARY. This study aimed to investigate the protective effect of asiaticoside on kidney injury in diabetes rats and the mechanism. The kidney injury in diabetes model was established in rats, and then the modeled rats were randomly divided into model and low-, middle- and high-dose asiaticoside groups, with 10 rats in each group. Other 10 rats were selected as the control group. The low-, middle- and high-dose asiaticoside groups were given 10, 20 and 40 mg/(kg·d) asiaticoside by intraperitoneal injection. The treatment was performed once a day, for four weeks. At the end of treatment, compared with model group, in asiaticoside groups the fasting blood glucose and fasting insulin levels were decreased, the blood urea nitrogen and 24-hours urine protein levels were decreased, the body weight was increased, the kidney index was decreased, the kidney tissue superoxide dismutase level was increased, the kidney tissue malondialdehyde level was decreased, the kidney tissue B-cell lymphoma 2 protein expression level was increased, and the kidney tissue B-cell lymphoma-2 associated X and cysteinyl aspartate-specific proteinase-3 protein expression levels were decreased (all $p < 0.05$). In conclusion, asiaticoside can ameliorate the kidney injury in diabetes rats by resisting oxidative stress and inhibiting kidney apoptosis.

RESUMEN. Este estudio tuvo como objetivo investigar el efecto protector del asiaticósido sobre la lesión renal en ratas diabéticas y el mecanismo. El modelo de lesión renal en diabetes se estableció en ratas, y luego las ratas modeladas se dividieron aleatoriamente en grupos modelo y de dosis baja, media y alta de asiaticósido, con 10 ratas en cada grupo. Se seleccionaron otras 10 ratas como grupo de control. Los grupos de asiaticósido en dosis baja, media y alta recibieron 10, 20 y 40 mg/(kg·d) de asiaticósido mediante inyección intraperitoneal. El tratamiento se realizó una vez al día, durante cuatro semanas. Al final del tratamiento, en comparación con el grupo modelo, en los grupos de asiaticósidos los niveles de glucosa en sangre en ayunas y de insulina en ayunas disminuyeron, los niveles de nitrógeno ureico en sangre y de proteínas en orina de 24 horas disminuyeron, el peso corporal aumentó y el índice renal disminuyó. , el nivel de superóxido dismutasa del tejido renal aumentó, el nivel de malondialdehído del tejido renal disminuyó, el nivel de expresión de la proteína del linfoma de células B 2 del tejido renal aumentó y la proteína X asociada al linfoma de células B 2 del tejido renal y la proteinasa específica de cisteinil aspartato -3 niveles de expresión de proteínas disminuyeron (todos $p < 0,05$). En conclusión, el asiaticósido puede mejorar la lesión renal en ratas diabéticas al resistir el estrés oxidativo e inhibir la apoptosis renal.

KEY WORDS: apoptosis, asiaticoside, diabetes, kidney injury, oxidative stress.

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