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Mitigating Effect of Silymarin on Renal Injury in Diabetic Rats and the Action Mechanism

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***SUMMARY*. This study aimed to investigate the effect and mechanism of silymarin on renal injury in diabetic rats and the action mechanism. The diabetes model of rats was established by intraperitoneal injection of streptozotocin. The modeled rats were randomly divided into model and 30, 60, and 120 mg/kg silymarin groups, 10 rats in each group. A group of 10 non-diabetic rats was included as control. The 30, 60, and 120 mg/kg silymarin groups were given the corresponding dose of silymarin, respectively. After 8 weeks of treatment, compared with model group, in 120 mg/kg silymarin group the body weight of rats was significantly increased, with kidney index significantly decreased; the fasting blood glucose level was significantly decreased, with fasting insulin level significantly increased; the serum creatinine, blood urea nitrogen and 24 h urine protein levels were significantly decreased; the serum tumor necrosis factor α, interleukin 6 and hypersensitive C-reactive protein levels were significantly decreased; the kidney tissue superoxide dismutase, catalase and glutathione peroxidase levels were significantly increased, with malondialdehyde level significantly decreased; the kidney tissue B-celllymphoma-2/B-celllymphoma-2 associated X ratio was significantly increased, with cysteinyl aspartate specific proteinase-3/β-actin ratio significantly decreased. In conclusion, silymarin can mitigate the renal injury in diabetic rats by reducing inflammatory response, oxidative stress and apoptosis.**

RESUMEN. Este estudio tuvo como objetivo investigar el efecto y el mecanismo de la silimarina en la lesión renal en ratas diabéticas y el mecanismo de acción. El modelo de diabetes de las ratas se estableció mediante inyección intraperitoneal de estreptozotocina. Las ratas modeladas se dividieron aleatoriamente en modelos y grupos de silimarina de 30, 60 y 120 mg/kg, 10 ratas en cada grupo. Se incluyó un grupo de 10 ratas no diabéticas como control. Los grupos de silimarina de 30, 60 y 120 mg / kg recibieron la dosis correspondiente de silimarina, respectivamente. Después de 8 semanas de tratamiento, en comparación con el grupo modelo, en el grupo de 120 mg/kg de silimarina, el peso corporal de las ratas aumentó significativamente y el índice renal disminuyó significativamente; el nivel de glucosa en sangre en ayunas disminuyó significativamente y el nivel de insulina en ayunas aumentó significativamente; los niveles de creatinina sérica, nitrógeno ureico en sangre y proteína en orina de 24 h disminuyeron significativamente; el factor sérico de necrosis tumoral α, la interleucina 6 y los niveles de proteína C reactiva hipersensible disminuyeron significativamente; los niveles de superóxido dismutasa, catalasa y glutatión peroxidasa en el tejido renal aumentaron significativamente y el nivel de malondialdehído disminuyó significativamente; la relación X asociada al linfoma de células B-2/linfoma-2 de tejido renal aumentó significativamente, con una relación de proteinasa-3/β-actina específica de aspartato de cisteinilo que disminuyó significativamente. En conclusión, la silimarina puede mitigar la lesión renal en ratas diabéticas al reducir la respuesta inflamatoria, el estrés oxidativo y la apoptosis.

KEY WORDS: apoptosis, diabetes, inflammatory response, oxidative stress, renal injury, silymarin.

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