Biochemical and Molecular Actions of Nutrients
Research Communication

Dietary Glutathione Protects Rats from Diabetic Nephropathy and Neuropathy

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ABSTRACT

Recently, much attention has focused on the role of oxidative stress in the various forms of tissue damage in patients with diabetes. The aim of this study was to examine the involvement of oxidative stress in the progression of kidney dysfunction and neuropathy in diabetes and to evaluate the potential usefulness of glutathione (GSH) in diabetes. We examined the effect that treatment of streptozotocin (STZ)-induced diabetic rats with GSH has on the renal and neural functions. Diabetic rats were treated with 1 g/100 g GSH as a dietary supplement. GSH significantly suppressed the diabetes-induced increase in urinary 8-hydroxy-2'-deoxyguanosine, one of the markers of oxidative stress. It also prevented the diabetes-induced increases in albumin and creatinine in urine. The diabetes-induced increase in the tail flick reaction time to thermal stimuli also was normalized by treatment with dietary GSH. In conclusion, GSH treatment can beneficially affect STZ-induced diabetic rats, with preservation of in vivo renal and neural function. This suggests a potential usefulness of dietary GSH treatment to reduce diabetic complications.