

Abstract

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Antihypertensive effect of biotin in stroke-prone spontaneously hypertensive rats.

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BACKGROUND: Biotin is a member of the vitamin B-complex family. Biotin deficiency has been associated with hyperglycaemia and insulin resistance in animals and humans.

METHODS: In the present study, we investigated the pharmacological effects of biotin on hypertension in the stroke-prone spontaneously hypertensive rat (SHRSP) strain.

RESULTS: We observed that long-term administration of biotin decreased systolic blood pressure in the SHRSP strain; also, a single dose of biotin immediately decreased systolic blood pressure in this strain. Pretreatment with the guanylate cyclase inhibitor 1H-[1,2,4]oxadiazole [4,3- α]quinoxalin-1-one abolished the hypotensive action of biotin in the SHRSP strain, while pretreatment with the NO synthase inhibitor NG-nitro-L-arginine methyl ester had no effect on the action of biotin. Biotin reduced coronary arterial thickening and the incidence of stroke in the SHRSP strain.

CONCLUSION: These results suggest that the pharmacological dose of biotin decreased the blood pressure of the SHRSP via an NO-independent direct activation of soluble guanylate cyclase. Our findings reveal the beneficial effects of biotin on hypertension and the incidence of stroke.

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