The reduced form of coenzyme Q10 improves glycemic control in patients with type 2 diabetes: An open label pilot study.


Department of Clinical Cell Biology and Medicine, Chiba University Graduate School of Medicine, 1-8-1 Inohana, Chuo-Ku, Chiba-Shi, Chiba 260-8670, Japan; Department of Medicine, Division of Diabetes, Metabolism and Endocrinology, Chiba University Hospital, 1-8-1 Inohana, Chuo-Ku, Chiba-Shi, Chiba 260-8670, Japan.

OBJECTIVE: Coenzyme Q10 (CoQ10) provides the energy for vital cellular functions and is known to act as an antioxidant. We conducted an open label study to examine the clinical effects of supplementation of the reduced form of CoQ10, ubiquinol, in addition to conventional glucose-lowering agents in patients with type 2 diabetes.

METHODS: Nine subjects (3 males and 6 females) with type 2 diabetes and receiving conventional medication were recruited. The subjects were assigned to receive an oral dose of 200 mg ubiquinol daily for 12 weeks. The effect of ubiquinol on blood pressure, lipid profile, glycemic control, oxidative stress, and inflammation were examined before and after ubiquinol supplementation. In addition, five healthy volunteers were also assigned to receive an oral dose of 200 mg ubiquinol daily for 4 weeks to examine the effects of ubiquinol on insulin secretion.

RESULTS: In patients with diabetes, there were no differences with respect to blood pressure, lipid profile, oxidative stress marker, and inflammatory markers. However, there were significant improvements in glycosylated hemoglobin (53.0 ± 4.3 to 50.5 ± 3.7 mmol/mol, P = 0.01) (7.1 ± 0.4 to 6.8 ± 0.4%, P = 0.03). In healthy volunteers, the insulinogenic index (0.65 ± 0.29 to 1.23 ± 0.56, P = 0.02) and the ratio of proinsulin to insulin were significantly improved (3.4 ± 1.8 to 2.1 ± 0.6, P = 0.03).

CONCLUSIONS: The results of our study are consistent with the suggestion that the supplementation of ubiquinol in subjects with type 2 diabetes, in addition to conventional antihyperglycemic medications, improves glycemic control by improving insulin secretion without any adverse effects.

PMID: 22887051