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Db/db mice에서 resveratrol 투여가 대사변화 및 신질환에 미치는 영향

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Long-term Administration of Resveratrol Reduces Metabolic Disturbances and Renal Injury in db/db Mice

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Objectives : Resveratrol, a polyphenolic SIRT1 activator, has been found to possess beneficial properties against metabolic diseases. The aim of present study is to examine the effects of chronic daily administration of resveratrol on metabolic disturbances and renal injury in type 2 diabetic mice.

Methods : Db/m and db/db mice at 8 weeks of age were given resveratrol (20 mg/kg/d) and vehicle for 3 months respectively. Physiologic, metabolic and biochemical parameters were measured at regular intervals.

Results : There were no significant changes in the levels of fasting blood glucose, HbA1c and blood pressure among all groups after resveratrol treatment. In diabetic mice, a trend of decreased body weight gain with age was observed in resveratrol-treated group. Resveratrol-fed diabetic mice exhibited significantly improved responses to insulin tolerance test and lower plasma insulin level and HOMA-IR. The high plasma concentrations of total cholesterol, triglyceride, LDL-cholesterol found in db/db mice were reduced in db/db mice that received resveratrol. After 2 month-treatment, resveratrol-fed diabetic mice showed reduced urinary albumin compared with vehicle-fed diabetic mice. This effect was much more apparent after 3 month-resveratrol treatment. Resveratrol treatment in db/db mice increased fat cholesterol contents and decreased plasma isoprostane level compared with vehicle.

Conclusion : Long-term administration of resveratrol improves insulin sensitivity, alteration of lipid metabolism and renal injury in db/db mice. These effects may be associated with the regulation of cholesterol homeostasis in adipocytes and decreased oxidative stress.

Key Words : Resveratrol, 인슐린저항성, 알부민뇨
Resveratrol, insulin resistance, albuminuria