F-25

The Effect of PPARγ2 Pro12Ala Polymorphism on Diabetic Nephropathy

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Background : Recently, the PPAR γ2 Pro12Ala polymorphism has been associated with type 2 diabetes and diabetic nephropathy. In the present study, we investigated the association between Pro12Ala polymorphism and diabetic nephropathy in korean subjects.

Methods : A total of 150 patients with type 2 diabetes and 80 normal controls were enrolled in this studies. Screening for mutation at codon of PPAR γ2 were carried out by PCR-RELP analysis. Also, we measured important covariables, such as duration of diabetes, blood pressure, renal function and serum lipids.

Results : In PCR-RELP, it showed that there were no difference in the PPAR γ2 genotype frequencies between diabetic subjects (Pro/Pro : 82.7%, Pro/Ala : 17.3%) and normal controls (87.5 %, 12.5%). However, it showed that there were significant difference in the PPAR γ2 genotype frequencies between diabetic subjects with nephropathy (Pro/Pro : 76.5%, Pro/Ala : 23.5%) and diabetic subjects without nephropathy (89.7%, 10.3%) (p=0.036). In diabetic subjects, Pro/Ala genotypes were significantly different from Pro/Pro genotypes regarding serum creatinine (1.81±1.02 vs 1.17±0.55 mg/dL), 24hour proteinuria (1.40±0.93 vs 0.84±0.67 g/day), and systolic pressure (166.22±14.56 vs 131.83±15.10 mmHg), respectively. In diabetic nephropathy, genotypes with Pro/Ala significantly increased serum creatinine, 24hr urine protein, systolic pressure, and total cholesterol than genotype with Pro/Pro.

Conclusion : Our results suggested that Pro12Ala Polymorphism of the PPAR γ2 gene may be associated with diabetes with nephropathy in korean patients.