The Association Between TGF-β1 Promoter Variant And Obese Adults In Remote Area in Taiwan.

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Abstract

Dietary, social economic and lifestyles change have lead to an increasing prevalence of obesity worldwide in recent years. In developed countries, obesity is a growing public health concern and also is a major risk factor for chronic diseases such as cardiovascular disease, diabetes, hyperlipidemia, metabolic syndrome and cancer. Transforming growth factor – beta 1 (TGF-β1) is a candidate gene for the development of obesity. TGF-β1 expression is associated with body mass index (BMI) and abdominal adipose tissue in morbid obesity. Obesity is not only affected by environmental factors but also caused by TGF-β1 gene mutation.

The purpose of this study was to evaluate the role of TGF-β1 C-509T genotypes as genetic indicator of susceptibility to obesity. In this cross-sectional study 252 male and 267 female was collected from adult health examination at Nan-tou County in Taiwan. BMI as a standard, the subjects separated into obese (n=131, BMI>= 27 kg/m^2) and non-obese (n=169) two groups. Each subject completed the demographic and lifestyle questionnaire. Blood samples were collected for DNA extraction to analyze TGF-β1 genotype by Polymerase Chain Reaction-Restriction Fragment Length Polymorphism (PCR-RFLP). The chi-square analysis was used to assess differences in genotypes and allele frequencies. Logistic and linear regression were performed to examine whether TGF-β1 genetic polymorphism associated with obesity. Data analysis showed that TGF-β1 gene polymorphism C-509T CC, CT and TT was no significant between obese and non-obese group. After adjusting risk factors, the logistic regression showed subjects with TT and CT genotypes compared with CC genotype have a higher risk of obesity, but not significant (OR = 1.13 and 1.05, 95% CI = 0.54-2.36 and 0.54- 2.05). In non-obese group TGF-β1 genotypes were associated with BMI ($p < 0.05$) and waist circumference ($p < 0.05$) respectively. In the obese group TGF-β1 genotypes were significantly associated with waist circumference ($p = 0.03$).

The C-509T variant of TGF-β1 was not associated with obesity, but results showed that subjects with the TT genotype expressed higher obesity-related biochemical indicators than with the CC genotype. This study may be due to other environmental factors and selection bias were not considered. The study may provide

a suggestion for obesity prevention. In future, we need other study groups to confirm that the variant of TGF-β1 C-509T plays an important role in obesity in remote area in Taiwan.

Key words: TGF-β1, obesity, variant