Lack of association between CYP27B1 gene polymorphism and type 2 diabetes mellitus in Iranian patients

Erfanian Saiedeh, Roustazadeh Abazar

Abstract

Purpose: Type 2 diabetes mellitus (T2DM) is a global health problem with multiple etiological factors. Previous studies indicated that 1- alpha, 25-dihydroxyvitamin D3, a molecule that is produced by CYP27B1, could protect insulin-secreted cells from destruction by immune cells. The aim of the study was to investigate the CYP27B1 promoter gene polymorphism in T2DM.

Methods: Two hundred subjects including 100 T2DM and 100 healthy individuals were recruited in the study. ARMS-PCR technique was used to identify rs10877012 genotypes in the 5′ region of CYP27B1.

Results: The frequency of CC, CA, and AA genotype was 61/50, 31/39, and 8/11, respectively in T2DM patients compared to healthy subjects. There was no significant difference between both groups in regarding to genotype and allele distribution ($P > 0.05$). CA (RR = 1.535, 95% CI = 0.841- 2.802) and AA (1.677, 95% CI = 0.627-4.490) genotypes had no association with increased risk of T2DM. In addition, CA + AA versus CC showed no increased risk for T2DM (RR = 0.639, 95% CI = 0.365-1.121).

Conclusion: We found no association between rs10877012 polymorphism and T2DM. There was no increased risk of this polymorphism in T2DM. Further studies with large groups are suggested in other populations to better understand the relation of CYP27B1 gene variation, especially its ethnicity-dependent relation with T2DM.

Keywords: CYP27B1, Diabetes mellitus, Gene variation, Vitamin D