OMICS Group Conferences
Accelerating Scientific Discovery

4th World Congress on
Diabetes & Metabolism

August 14-16, 2013 Holiday Inn Chicago-North Shore, IL, USA

Influence of glutathione S-transferase gene polymorphism on the risk of type 2 diabetes mellitus retinopathy in south Iranian population

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Introduction: Oxidative stress resulting from an imbalance between increased free-radical formation and a defect in antioxidant defenses has important role in the pathogenesis of diabetes and its complications. Enzymes of the glutathione S-transferase (GST) family are one of the most important antioxidant barriers that their polymorphic variants have been implicated in beta cell dysfunction and are highly relevant to diabetic complications. Diabetic retinopathy (DR) is the most severe microvascular complication of diabetes which we tried to investigate its association with GSTM1 and GSTT1 gene polymorphism in south Iranian type 2 diabetic (T2DM) individuals in the first time.

Methods: A total of 406 type 2 diabetes mellitus patients were screened in this case-control study inclusive of 204 patients with clinically defined DR and 202 individuals with no clinical signs of DR. The genotypes of GSTM1and GSTT1 were determined by using multiplex-PCR method.

Results: There appeared to be a significant difference in the genotype and allele distribution of GSTM1 polymorphism between T2DM groups with and without DR (P=0.03). However, genotype and allele distributions of GSTT1 polymorphism were not significantly different between two studied groups (P=0.77). Moreover, the combination of two high-risk genotypes, GSTM1-null and GSTT1-present, showed the increased risk of developing retinopathy in T2DM patients up to 1.62 times (P = 0.04).

Conclusions: These findings reveal a significant association between GSTM1 and GSTT1 polymorphisms with DR in T2DM individuals in south Iranian population.

Biography

Elham Moasser has completed her genetic M.sc at the age of 26 years from Shahid Chamran University of Ahvaz Faculty of Science and finished this M.sc thesis by the scientific supports of Shiraz University of Medical Sciences' professors.

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