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TWO VARIANTS OF WDR36 GENE IN PRIMARY OPEN ANGLE GLAUCOMA

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ABSTRACT

Background

Glaucoma is the second leading cause of blindness affecting 67 million people worldwide. Primary open angle glaucoma (POAG) is the most common form of glaucoma. High intraocular pressure and a positive family history for glaucoma are commonly associated risk factors.

Purpose

To study the association of WDR36 gene polymorphisms (rs10038177, rs1971050) with primary open angle glaucoma (POAG) in Iraqi population and to detect the impact of these polymorphism on intra ocular pressure and cup-disk ratio.

Methods

A case–control study was conducted to find the association of WDR36 gene polymorphisms (rs10038177, rs1971050) with primary open angle glaucoma in Iraqi population. The study included 150 patients and 150 controls) who attended the ophthalmology unit at Al-Sader medical city and Al-Hakeem hospital in Al- Najaf Al-Ashraf governorate. DNA was extracted from blood and genotyped by PCR-RFLP by using (AluI) enzyme. To compare the proportion of genotypes and alleles the multinomial logistic regression was applied. The odd ratio was calculated with and without adjustment for age and sex to evaluate risk of developing of POAG.

Results

The results shown that homozygous (CC) significantly (OR= 3.57 CI95 %(1.49-8.57), P= 0.004) increased the risk of POAG by three fold with respect to those of the wild (TT) after adjustment for age and sex and heterozygous (TC) genotypes significantly (OR=2.04 (1.24-3.36) P= 0.005) raised the risk of POAG by two folds. The frequency of the C allele of rs10038177 (T/C) polymorphism was significantly higher (0.005) in POAG (33.3%) compared to controls (19.3%). While the results of genotype frequency of WDR36 gene polymorphism (rs1971050) shown that homozygous (CC) and heterozygous (TC) genotypes have no significant association with the risk of POAG disease (OR=1.28,CI 95% 0.67 -2.46, P= 0.45) and (OR=3.48,CI 95% 0.68 -17.78, P= 0.13) respectively.

Conclusions

The WDR36 gene polymorphism (rs10038177) is involved in the pathogenesis of POAG.

KEYWORDS: Glaucoma, WDR36 Gene Polymorphism, Primary Open Angle Glaucoma