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Isfahan University of Medical Sciences

Allele frequencies of single nucleotide polymorphisms of cytochrome p450 cyp2c8 in an iranian population using taqman genotyping assay

M. Ghaffari[1*], A. Ramazani[2]

[1]*Student Research Committee, Zanjan University of Medical Sciences, Zanjan, Iran*
[2]*Biotechnology Departments, School of Pharmacy, Zanjan University of Medical Sciences, Zanjan, Iran.*

Background and Aims: CYP2C8 is genetically polymorphic. Four variants, CYP2C8*2, CYP2C8*3, CYP2C8*4 and CYP2C8*5, which contain mutations in the coding regions have been reported to exhibit different enzyme activity as compared with CYP2C8*1 allele. The aim of this study was to determine the allele frequency of two codon-changing variants (CYP2C8*2, CYP2C8*3) in the healthy Iranian population.
Methods: The study was conducted in 200 unrelated healthy human volunteers. Blood samples of healthy volunteers were collected from different regions of Iran and then their DNA extracted with standard salting out method. Primers and probes for these alleles were designed by the PrimerExpress (Version 3.0) software. Mutation analysis of CYP2C8 alleles was performed by means of real time PCR method (TaqMan assay). 1.5 % agarose electrophoresis gel were used to confirm amplicon fragment size of target. Data were analyzed by SPSS that connect with Real-time PCR device at the end.
Results: The frequencies of each polymorphism in Iranian population were found as 0.18 and zero for CYP2C8*2 (16149A>T), CYP2C8*3 (7225G>A) respectively.
Conclusions: This is the first report of CYP2C8 allele frequency form Iran by real time PCR technique. From this study was found that Real-time PCR is a robust and sensitive technique than common PCR for SNP genotyping. It might be screened to determine the relationship between CYP2C8*2 and CYP2C8*3 related drug metabolisms in associated groups.

Keywords: SNP; CYP2C8; Real time PCR