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TCF7L2 polymorphism a prominent marker among subjects with Type-2-Diabetes with a positive family history of diabetes

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Abstract

The greatest risk of developing type2 diabetes (T2DM) was conferred by rs7903146 SNP of Transcription factor7-like2 (TCF7L2) gene in many ethnic populations. The aim was to investigate the association of TCF7L2 (rs7903146) gene polymorphism among newly diagnosed diabetes subjects with different parental diabetes registry. A total of 171 subjects were categorized into 3 groups based on parental diabetes registry i.e. Conjugal Diabetes Registry (CDR) (n = 50), One Parental Diabetes Registry (OPDR) (n = 56) and Non Parental Diabetes Registry (NPDR) (n = 62) (control group). Kompetitive allele specific PCR (KASP) genotyping assay was used in real time PCR for identifying the genotypes. None of the biochemical parameters showed any significant difference between groups except age at onset of diabetes (p = 0.001). The T allele of TCF7L2 (rs7903146) was associated with significant risk of diabetes. TT genotype which doubles the diabetes risk showed significant association among OPDR whereas in CDR both CT and TT genotypes showed significant association than CC wild type. The 'T' allele of TCF7L2 SNP was associated with significant risk when compared between OPDRvsNPDR (OR 2.45, p = 0.003) and CDRvsNPDR (OR 2.82, p = 0.0007). In conclusion, TCF7L2 gene polymorphism and positive family history of diabetes are strongly associated irrespective of the presence of other risk factors among diabetes subjects.

Keywords: Parental diabetes Registries; TCF7L2 polymorphism; Type-2-diabetes.

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