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Association of CASP 8 (IVS12-19 G/A and -652 del/ins) polymorphisms in Type 2 Diabetes

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ABSTRACT

Introduction

Type 2 Diabetes (T2D) is a multifactorial disease characterized by insulin resistance, defective insulin secretion, and loss of beta cell mass. Owing to relatively low expression level of antioxidant enzymes, pancreatic beta cells are extremely vulnerable to apoptosis. The two apoptotic pathways include extrinsic and intrinsic pathways. Extrinsic pathway is activated upon ligation of the cell surface death receptor, which causes assembly of series of proteins of the death-inducing signaling complex, which then activates one of the initiator caspases, CASP 8. Genetic variants of CASP 8 that can alter its function are likely to affect the rate of apoptosis in pancreatic beta cells.

Objective

The present study is focused to understand the association of CASP 8 (IVS12-19 G/A and -652 del/ins) polymorphisms in the pathogenesis of T2D.

Methods

The study included 310 T2D patients recruited from South Central Railway Hospital, Lallaguda, Secunderabad, along with equal number age and gender matched healthy controls. Informed written consent was obtained from all the subjects under study. Genomic DNA was extracted from all blood samples by non-enzymatic salting out method. Genotyping of CASP 8 (IVS12-19 G/A and -652 del/ins) polymorphisms were done by PCR-RFLP assay. Statistical analyses were performed using Open-epi and SNPStats online tools.

Results

The statistical analysis of the genotype and allele frequencies of CASP 8 (IVS12-19 G/A and -652 del/ins) polymorphisms revealed significant differences between controls and T2D patients ($p<0.05$).

Conclusion

The results suggest that CASP 8 (IVS12-19 G/A and -652 del/ins) polymorphisms may play an important role in pancreatic beta cell apoptosis in T2D.

Key words: Type 2 Diabetes, Apoptosis, CASP 8

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