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PREVALENCE OF MT DNA MUTATION IN TYPE II DIABETES MELLITUS

Bagher Larijani, Masoud Houshmand, Ghamar Soltan Dorraj, Farzaneh Darvishzadeh

Abstract:

Background: Mitochondria is one of the intracellular organelle with specific DNA. Some diseases caused by mtDNA mutations have been reported up to now. Mutation of A3243G and deletion of 5kb are two of them that related to Diabetes type II. The aim of this study was to evaluate the frequency of A3243G mutation and 5kb mt DNA deletion in type II diabetic patients. Methods: The DNA extracted from blood of 130 patients with diabetes type II. Serum insulin of the patients were also measured. Sequence assigning, PCR – RFLP and SSCP methods were used to detect the A3243G or other mutation in mitochondrial tRNA (leu) gene. Standard and multiplex PCR were used to detect 5kb deletion in patient's mt DNA and were compared with 40 healthy persons. Results :We couldn't identify any deletion of 5kb or A3243G point mutation in our patients but SSCP results showed new pattern of PCR Product in patients. An "A" nucleotide deletion in A 3314 position was detected in mitochondrial ND1 gene in 6 patients. So far this point deletion has not been reported. Conclusion: Identification of the mitochondrial gene mutations helps to preclinical diagnosis of diabetes type 2. More research is necessary in this field.

Keywords:

Diabetes Mellitus Type II ، Mitochondria ، mt DNA ، A3243G ، 5kb

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top