GMR Genetics and Molecular Research
Online Journal
ISSN:1676-5680

Type II deiodinase polymorphisms and serum thyroid hormone levels in patients with mild cognitive impairment

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Genet. Mol. Res. 14 (2): 5407-5416 (2015)
Received May 27, 2014
Accepted October 17, 2014
Published May 22, 2015
DOI http://dx.doi.org/10.4238/2015.May.22.10

ABSTRACT. We investigated type II deiodinase (DIO_2) polymorphisms and serum thyroid hormone levels in subjects with mild cognitive impairment (MCI) in a Uygur population. We studied the DIO_2 Thr92Ala (rs225014) and ORFa-Gly3Asp (rs12885300) polymorphisms of 129 unrelated MCI cases and 131 matched controls. All subjects were genotyped using SNaPshot SNP genotyping assays. Serum thyroid hormone levels were measured by radioimmunoassay. Levels of serum triiodothyronine and thyroxine in the MCI group were significantly lower than those in the control group. Genotype and allele frequencies in the DIO_2 gene between the MCI and control groups were not significantly different. There was no association in genotype and allele frequencies of Thr92Ala between genders in both groups. ORFa-Gly3Asp genotype and allele frequencies were significantly different in patients and controls by gender. The Asp allele was less frequent among male MCI patients compared to controls (odds ratio = 0.471, 95% confidence interval = 0.261-0.848). However, female Asp carriers were more frequent among MCI patients than among controls (odds ratio = 2.842, 95% confidence interval = 1.326-6.09). Serum levels of triiodothyronine and thyroxine

were lower in individuals of the Ala/Ala genotype than in those with the Thr/Thr or Thr/Ala genotype. Serum levels of triiodothyronine were lower in male Gly/Gly carriers than in Gly/Asp or Asp/Asp carriers. Decreased serum levels of triiodothyronine and thyroxine may influence the incidence of MCI in the Uygur population. DIO_2 gene polymorphisms may play a role in the incidence of MCI in male patients.

Key words: Gene; Mild cognitive impairment; Polymorphism; Uygur; Thyroid hormone; Type 2 deiodinase

