Mitochondrial DNA G13708A variation and multiple sclerosis: Is there an association?

Andalib S¹, Talebi M², Sakhinia E³, Farhoudi M², Sadeghi-Bazargani H⁴, Emamhadi MR⁵, Masoodian N⁶, Balaghi-Inalou M⁷, Vafeae MS⁸, Gjedde A⁹.

Abstract

BACKGROUND:

Multiple sclerosis (MS) is considered a pathogenetic enigma. Recently, efforts to implicate genetics in human susceptibility to MS have identified an important role of mitochondrial DNA (mtDNA). G13708A is a common mtDNA variation associated with MS in specific populations. This study tested the hypothesis that the mtDNA G13708A variation is associated with MS in an Iranian population.

MATERIALS AND METHODS:

Blood samples were collected from 100 MS patients and 100 unrelated healthy controls. DNA was extracted using a salting-out method, followed by polymerase chain reaction (PCR) amplification. For assessment of restriction fragment length polymorphism (RFLP), PCR products were restricted by restriction enzyme Mva I. Thereafter, the restriction products were assessed by means of an ultraviolet (UV) transilluminator following electrophoresis with 3% agarose gel. Accuracy of the genotyping procedure was assessed by direct sequencing.

RESULTS:

The mtDNA G13708A variation was found in 17 cases (17%) and 19 controls (19%) (P=0.7, OR: 0.8, 95% CI: 0.3-1.9).

CONCLUSION:

The findings of the present study fail to support the hypothesis that the G13708A mtDNA variation is associated with MS in the selected Iranian population.

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KEYWORDS:

G13708A; Iranian population; Mitochondrial DNA; Multiple sclerosis; mtDNA variation