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**Mitochondrial DNA copy number variation in Iranian patients with non-alcoholic fatty liver disease**

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**Introduction:** Non-alcoholic fatty liver disease (NAFLD) is the term for a range of damages, from very mild hepatic steatosis to nonalcoholic steatohepatitis (NASH). Mitochondria are the main source of reactive oxygen species (ROS) in hepatocytes. Recent evidence suggests that mitochondrial dysfunction leads to an overproduction of ROS which is considered to be an important factor associated with progression of NAFLD. The aim of this study is to assess an association between mtDNA copy number and risk of NAFLD in a sample of Iranian population.

**Methodology & Theoretical Orientation:** This study included 43 patients with NAFLD and 43 healthy control subjects. The mtDNA copy number was measured by a quantitative real-time PCR assay using DNA extracted from peripheral blood samples.

**Findings:** The relative expression of mtDNA copy number was 8.4 fold higher in patients with NAFLD than healthy controls ( $P < 0.001$ ). In addition, the mtDNA copy number was 8.7 ( $P < 0.001$ ) and 8.1-fold ( $P < 0.001$ ) higher in nonalcoholic fatty liver (NAFL) and non-alcoholic steatohepatitis (NASH) patients than healthy controls, respectively.

**Conclusion & Significance:** This study showed an association between mtDNA copy number in Peripheral Blood and risk of NAFLD that may be a consequence of compensatory response to the exposures to oxidative damage induced by ROS. Therefore this results suggest that changes in mtDNA copy number may be useful as a blood-based biomarker for detection of NAFLD.

**Biography**

Sharareh Kamfar has graduated in molecular medicine in Hamadan University of Medical Sciences, Iran. Her thesis is about the relation between nonalcoholic fatty liver disease and mitochondria. In the future, she wants to follow this topic to get acceptable results but now she is working on Thiamine-responsive megaloblastic anemia syndrome seriously in a Pediatric Congenital Hematologic Disorders Research Center (PCHDRC). She has also researched into probiotics for many years in university..

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