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Data Article

Data on association of mitochondrial heteroplasmy and cardiovascular risk factors: Comparison of samples from Russian and Mexican populations



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ABSTRACT

Despite the fact that the role of mitochondrial genome mutations in a number of human diseases is widely studied, the effect of mitochondrial heteroplasmy in the development of cardiovascular disease has not been adequately investigated. In this study, we compared the heteroplasmy levels of mtDNA from leukocytes for m.3256C > T, m.3336T > C, m.12315G > A, m.5178C > A, m.13513G > A, m.14459G > A, m.14846G > A, m.15059G > A, m.652insG and m.1555A > G mutations in CVD-free subjects and CVD patients in samples derived from Russian and Mexican populations. It was demonstrated that heteroplasmy level of m.5178C > A was associated with CVD in Russian men, and m.14459G > A – in Russian women. Mitochondrial heteroplasmy

List of Abbreviations: CVD, cardiovascular disease; BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure; MI, myocardial infarction; HDL, high-density lipoproteins; LDL, low-density lipoproteins; TG, triglycerides

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level of m.13513G > A and m.652insG were associated with CVD in Mexican men, and only m.652insG– in Mexican women. The levels of heteroplasmy for mitochondrial mutations m.3336T > C, m.5178C > A, m.14459G > A, m.14846G > A and m.1555A > G were significantly higher in CVD-free Mexican men, and for m.3256C > T, m.3336T > C, and m.14459G > A – in CVD-free Mexican women.

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Specifications Table

Subject area	Cardiovascular diseases
More specific sub- ject area	Genetic predisposition to cardiovascular disease
Type of data	Tables
How data was acquired	Pyrosequencing, clinical data, biochemical analysis
Data format	Analysed
Experimental factors	Not applicable
Experimental features	Mitochondrial mutations m.1555A > G, m.3256C > T, m.3336T > C, m.5178C > A, m.12315G > A, m.13513G > A, m.14459G > A, m.14846G > A, m.15059G > A, m.652insG were determined using pyrosequencing technology, and their association with CVD was analysed
Data source location	Rostov-on-Don, Russia Moscow, Russia Villahermosa, Mexico
Data accessibility	Data are provided in this article

Value of the data

- The study shows that in genetically and clinically diverse populations, Russian and Mexican ones, the mutations of the mitochondrial genome are differently related to cardiovascular disease.
- In samples from Russian population, mitochondrial heteroplasmy level of m.5178C > A and m.14459G > A were significantly higher in men and women with CVD, respectively. In samples from Mexican population, heteroplasmy level of these mutations was significantly higher in CVD-free study participants. More, in Mexican population, heteroplasmy levels of m.13513G > A and m.652insG were associated with CVD in males, and m.652insG– in females. Higher level of heteroplasmy of mutations m.3336T > C, m.5178C > A, m.14459G > A, m.14846G > A and m.1555A > G was demonstrated in healthy men, and that of m.3256C > T, m.3336T > C, and m.14459G > A – in healthy women.
- Estimation of the associations of as much as possible mitochondrial mutations with risk factors and clinical signs of coronary heart disease and atherosclerosis provides an important source for further investigation of the role of mitochondrial heteroplasmy level in the development of cardiovascular pathology.

1. Data

Clinical and laboratory characteristics of Russian and Mexican study participants are presented in [Tables 1](#) and [2](#).

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