

Mitochondrial DNA levels in the blood may predict risk of developing kidney disease

21 January 2016

The health of blood cells' energy-producing mitochondria may predict a person's risk of developing chronic kidney disease (CKD), according to a study appearing in an upcoming issue of the *Journal of the American Society of Nephrology (JASN)*. The findings could lead to improvements in the prevention and treatment of CKD.

In the United States, approximately 26 million people, or 13% of US adults, have CKD. While there are a variety of causes of CKD, many cases involve dysfunction of kidney cells' mitochondria, or the cellular components that produce energy that's critical for cells to survive.

To investigate whether the number of copies of mitochondrial genes (mitochondria DNA copy number) in blood might be a marker of CKD risk, Adrienne Tin, PhD (Johns Hopkins Bloomberg School of Public Health) and her colleagues analyzed data from 9058 participants of the Atherosclerosis Risk in Communities (ARIC) Study, a prospective epidemiologic study conducted in 4 US communities.

Over a median follow-up of 19.6 years, the researchers found that higher levels of mitochondrial DNA copy number were linked with a lower risk of developing CKD. After adjusting for various factors including age, sex, race, diabetes, and hypertension, individuals with the highest levels of mitochondrial DNA copy number had a 25% lower risk of developing CKD compared with individuals with the lowest levels.

"This result suggests modifiable factors influencing mitochondrial DNA copy number may be potential targets for the prevention and treatment of CKD," said Dr. Tin.

More information: "Association between Mitochondrial DNA Copy Number in Peripheral Blood and Incident Chronic Kidney Disease:

Results from the Atherosclerosis Risk in Communities (ARIC) Study," on January 21, 2016, [DOI: 10.1681/ASN.2015060661](https://doi.org/10.1681/ASN.2015060661).

Provided by American Society of Nephrology

APA citation: Mitochondrial DNA levels in the blood may predict risk of developing kidney disease (2016, January 21) retrieved 10 July 2022 from <https://medicalxpress.com/news/2016-01-mitochondrial-dna-blood-kidney-disease.html>

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