

New Online Views **21,963** | Citations **0** | Altmetric **2185** | Comments

PDF	Full Text	Share			Comment
-----	-----------	-------	--	--	---------

Original Investigation

ONLINE FIRST

July 19, 2021

Coffee Consumption and Incident Tachyarrhythmias

Reported Behavior, Mendelian Randomization, and Their Interactions

Eun-jeong Kim, MD¹; Thomas J. Hoffmann, PhD^{2,3}; Gregory Nah, MA¹; et al

[» Author Affiliations](#)

JAMA Intern Med. Published online July 19, 2021. doi:10.1001/jamainternmed.2021.3616

Editorial Comment

Interviews

Key Points

Question Is moderate, habitual coffee intake associated with the risk of arrhythmia, and is that association modified by genetic variants that affect caffeine metabolism?

Findings In this large, prospective, population-based community cohort study of more than 300 000 participants, each additional daily cup of coffee was associated with a 3% reduced risk of developing an arrhythmia; these associations were not significantly modified by genetic variants that affect caffeine metabolism. A mendelian randomization study leveraging a polygenic score to capture inherited caffeine metabolism patterns did not reveal evidence that caffeine consumption increases the risk of incident arrhythmias.

Meaning Neither habitual coffee consumption nor genetically mediated differences in caffeine metabolism was associated with a heightened risk of cardiac arrhythmias.

Abstract

Importance The notion that caffeine increases the risk of cardiac arrhythmias is common. However, evidence that the consumption of caffeinated products increases the risk of arrhythmias remains poorly

substantiated.

Objective To assess the association between consumption of common caffeinated products and the risk of arrhythmias.

Design, Setting, and Participants This prospective cohort study analyzed longitudinal data from the UK Biobank between January 1, 2006, and December 31, 2018. After exclusion criteria were applied, 386 258 individuals were available for analyses.

Exposures Daily coffee intake and genetic polymorphisms that affect caffeine metabolism.

Main Outcomes and Measures Any cardiac arrhythmia, including atrial fibrillation or flutter, supraventricular tachycardia, ventricular tachycardia, premature atrial complexes, and premature ventricular complexes.

Results A total of 386 258 individuals (mean [SD] age, 56 [8] years; 52.3% female) were assessed. During a mean (SD) follow-up of 4.5(3.1) years, 16 979 participants developed an incident arrhythmia. After adjustment for demographic characteristics, comorbid conditions, and lifestyle habits, each additional cup of habitual coffee consumed was associated with a 3% lower risk of incident arrhythmia (hazard ratio [HR], 0.97; 95% CI, 0.96-0.98; $P < .001$). In analyses of each arrhythmia alone, statistically significant associations exhibiting a similar magnitude were observed for atrial fibrillation and/or flutter (HR, 0.97; 95% CI, 0.96-0.98; $P < .001$) and supraventricular tachycardia (HR, 0.96; 95% CI, 0.94-0.99; $P = .002$). Two distinct interaction analyses, one using a caffeine metabolism-related polygenic score of 7 genetic polymorphisms and another restricted to CYP1A2 rs762551 alone, did not reveal any evidence of effect modification. A mendelian randomization study that used these same genetic variants revealed no significant association between underlying propensities to differing caffeine metabolism and the risk of incident arrhythmia.

Conclusions and Relevance In this prospective cohort study, greater amounts of habitual coffee consumption were inversely associated with a lower risk of arrhythmia, with no evidence that genetically mediated caffeine metabolism affected that association. Mendelian randomization failed to provide evidence that caffeine consumption was associated with arrhythmias.

Invited Commentary

Another Cup of Coffee Without an Arrhythmia, Please

 [Full Text](#)

[Comment](#)

Read More About

Cardiology

Diet

Lifestyle Behaviors

Rhythm Disorders



Coronavirus Resource Center

Trending

Research

mRNA Vaccines and COVID-19 Infection and Hospitalization Among Patients With Cirrhosis

July 13, 2021

Research

Safety Evaluation of the Second Dose of mRNA COVID-19 Vaccines in Patients With Immediate Reactions to the First Dose

July 26, 2021

Research

Race/Ethnicity and Likelihood of COVID-19 Vaccine Uptake Among Health Workers and General Population

July 1, 2021

Select Your Interests

Advertisement

JOB LISTINGS ON JAMA CAREER CENTER®

Physician (Internal Medicine)

Jbsa Fort Sam Houston, TX

Clinical Faculty: Addiction Specialist with the University of

Arizona

Phoenix, Arizona

Physician (Internal Medicine)

Ft. Riley, KS

Hospitalist/Nocturnist

Hackensack, New Jersey

Physician Internal Medicine

Ft. Gordon, GA

See more at JAMA Career Center

Others Also Liked

Consortium of Researchers Report Novel Loci Linked to Coffee Habit

GenomeWeb, 2014

Higher coffee consumption could confer reduced HF risk

By Erin T. Welsh et al., Healio, 2021

Supraventricular Tachycardia With Underlying Atrial Flutter in a Diabetic Ketoacidosis Patient

Taha A. Faruqi et al., Clin Diabetes, 2015

Powered by **TREND MD**

Trending

mRNA Vaccines and COVID-19 Infection and Hospitalization Among Patients With Cirrhosis

JAMA Internal Medicine | *Research* | July 13, 2021

Immunogenicity of a Single Dose of SARS-CoV-2 mRNA Vaccine in Solid Organ Transplant Recipients

JAMA | *Research* | May 4, 2021

Asymptomatic and Symptomatic SARS-CoV-2 Infections After BNT162b2 Vaccination in a Routinely Screened Workforce

JAMA | *Research* | June 22, 2021
