

Taller people have increased risk for developing atrial fibrillation

November 13 2019



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Taller people have an increased risk of developing atrial fibrillation (AFib), an irregular and often rapid heartbeat that can lead to stroke, heart failure and other complications, according to a new Penn Medicine

study. The research, which reveals a strong link between the genetic variants associated with height and one's risk for AFib, is the among the first to demonstrate that height may be a causal—not correlated—risk factor for AFib. The findings will be presented on Saturday, Nov. 16, at the American Heart Association's 2019 Scientific Sessions in Philadelphia.

Researchers found that the risk for AFib climbed as one's height increased, with every one-inch increase in height translating to about a three percent increase in risk of Afib—independent of other clinical factors—as compared to those at average height (5 feet and 7 inches).

"Our findings suggest it may be beneficial to incorporate height into risk-prediction tools for AFib," said the study's lead author Michael Levin, MD, a Cardiovascular Medicine fellow at Penn. "While current guidelines advise against widespread screening for AFib, our findings show that a certain group of patients—specifically, very tall patients—may benefit from screening."

AFib, which affects more than 33 million people worldwide, is a common, abnormal heart rhythm. There are a number of clinical [risk factors](#) for developing AFib, including high blood pressure, [heart disease](#), diabetes, and obesity. Observational studies, examining population-level data, have found that taller individuals appear to have a higher risk of developing AFib. However, questions exist about whether height can cause AFib, or if it's just a common, insignificant factor.

To further examine the association between height and Afib, the Penn team leveraged data from the Genetic Investigation of Anthropometric Trials (GIANT) consortium, which studied more than 700,000 individuals to identify genetic variants associated with height. They also examined data from the Atrial Fibrillation Genetics (AFGen) consortium, which studied more than 500,000 individuals to identify

genetic variants associated with AFib. The authors employed a statistical method which uses genetics to precisely estimate the relationship between two traits. Their analysis revealed that genetic variants associated with height were also strongly associated with Afib, suggesting that increased height may be a cause of [atrial fibrillation](#). This relationship remained strong even after adjusting for traditional AFib risk factors, like heart disease, high blood pressure, and diabetes, among others.

From there, researchers used a similar [statistical method](#) to conduct an individual-level analysis of nearly 7,000 individuals enrolled in the Penn Medicine Biobank. They found that height, and genetic variants associated with height, are strongly associated with an [increased risk](#) of AFib, independent from traditional clinical and echocardiographic risk factors.

"These analyses show how we can use human genetics to help us better understand causal risk factors for common disease," said the study's senior author Scott Damrauer, MD, an assistant professor of Surgery at Penn Medicine and a vascular surgeon at the Corporal Michael J. Crescenz VA Medical Center. "They also illustrate how we can combine summary-level statistics from large published studies with individual level data from institutional biobanks to further our understanding of human disease."

More information: Levin will present the research on Saturday at 4:30 pm ET in Zone 1 of the Science and Technology Hall at the Pennsylvania Convention Center (1101 Arch St., Philadelphia, PA 19107).

Provided by Perelman School of Medicine at the University of

Pennsylvania

Citation: Taller people have increased risk for developing atrial fibrillation (2019, November 13)
retrieved 7 May 2024 from

<https://medicalxpress.com/news/2019-11-taller-people-atrial-fibrillation.html>

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