

Abnormal heartbeat identified in 1 in 20 older adults using wrist-worn wearable and smartphone

November 24 2022, by Angelika Leute



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Consumer electronics provide a novel route to screen for atrial arrhythmias. A study offered smartphone and wearable-based continuous arrhythmia screening to older adults without known atrial fibrillation. Atrial arrhythmia was detected in five percent of the participants. The



study was performed by AFNET. The principal investigator was Professor Larissa Fabritz, University of Birmingham and University Medical Center Hamburg Eppendorf (UKE), Hamburg, Germany.

Atrial fibrillation (AF) is the most common arrhythmia and a rising epidemic. It affects several million people in Europe, mostly older adults. In many people the arrhythmia is asymptomatic and often remains unnoticed for a long time. This can be dangerous as risk of stroke and other complications may be elevated in older adults with atrial arrhythmias—even if the arrhythmia appears only temporarily and is not noticed by the person concerned.

Timely detection of atrial arrhythmias potentially enables earlier therapy to prevent complications, for example by starting anticoagulation in order to prevent strokes. Therefore, experts advise screening in the older population in order to search systematically for arrhythmias. Modern wearables linked to the smartphone provide a novel route for this.

The Smart in OAC—AFNET 9 (Smartphone and wearable detected atrial arrhythmia in Older Adults Case finding) study offered continuous atrial arrhythmia screening to people aged over 65 years without known atrial fibrillation and not receiving oral anticoagulation. The study was performed in Germany, Poland and Spain during the COVID pandemic in 2021. 882 senior citizens aged between 65 and 90 years participated and recorded signals.

Professor Fabritz explained the background of the study, "Simple, scalable methods to identify atrial arrhythmias in at-risk populations are needed to enable timely detection of AF and initiation of therapy. Therefore, we performed the Smart in OAC—AFNET 9 study and evaluated the usability of a fully digital detection system for atrial arrhythmias in older adults."



Senior citizens were invited to participate by various ways. The majority of participants were reached by media campaigns in newspapers and television or by word of mouth and town hall meetings for <u>senior citizens</u>. The remaining participants were attracted by leaflets, identified by <u>general practitioners</u> made aware of the study, a website, outpatient clinics or pharmacies.

Participants received a wristband with a sensor to detect the pulse coupled to an app on their smartphone, enabling fully remote continuous rhythm monitoring for up to eight weeks. Remote participation was essential in the light of the COVID-19 pandemic.

Atrial arrhythmia was detected in 44 participants (5%) within 28 days. Atrial arrhythmia detection was higher in the first week of monitoring compared to the subsequent weeks. Only in a few persons, <u>arrhythmia</u> occurred for the first time after more than four weeks.

Professor Fabritz concluded, "Smart in OAC—AFNET 9 successfully used a smartphone and wearable-based system to detect atrial arrhythmias in older people in several European countries. Offers of remote technical assistance were accepted and compliance was high, showing feasibility for this age group."

"Our screening identified atrial arrhythmias in 5% of older adults. Detection rates were high in the first week of monitoring, and tapered off thereafter, suggesting that relatively short monitoring periods may be sufficient to detect older adults with atrial arrhythmias. These findings encourage the use of fully digital, <u>consumer-electronics</u> based systems to screen for atrial arrhythmias in unselected <u>older adults</u>."

Provided by Kompetenznetz Vorhofflimmern e.V. (AFNET)



Citation: Abnormal heartbeat identified in 1 in 20 older adults using wrist-worn wearable and smartphone (2022, November 24) retrieved 20 May 2024 from https://medicalxpress.com/news/2022-11-abnormal-heartbeat-older-adults-wrist-worn.html

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