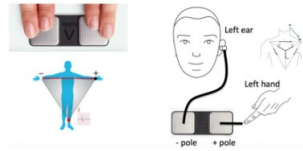


#EHRA2019: New ECG uses signals from ear and hand to check heart rhythm



A pioneering study presented at EHRA 2019, a European Society of Cardiology (ESC) congress, reports that the ear can be used for electrocardiogram (ECG) signal detection. In the study, a novel ECG device utilised signals from the ear and hand to check heart rhythm. This new ECG not requiring two hands could be used by drivers, athletes, and the military, according to researchers.

"Mobile ECG devices present a major opportunity to detect atrial fibrillation, the most common heart rhythm disorder, and thereby prevent strokes and reduce hospitalisations," said study author Dr. Raffaele De Lucia, of the University Hospital of Pisa, Italy. "All commercially available portable ECG devices require both hands, but what if symptoms happen while driving?"

The study included 32 consecutive healthy volunteers (cardiology students and nurses). An ECG was first performed by the standard method, which uses the index and middle finger of each hand. A second ECG was conducted using the index and middle finger of the left hand and a clip attached to the left ear. (See image)

All ECGs were printed and analysed by the device and by two cardiologists who were blinded to which method had been used. No differences were detected in the ECG results obtained by the two methods. The findings, Dr. De Lucia noted, clearly show that the ear can be used as an innovative anatomical site for ECG signal detection in healthy adults. "We are now conducting further studies to validate this method in patients with cardiac arrhythmias," the author added.

The study's findings also pave the way for a new kind of single lead ECG wearable device which leaves one hand free, making it easier to use. In addition to detecting previously undiagnosed atrial fibrillation, the ECG device could be used to evaluate physical performance during exercise, prevent fainting, and check the heart during symptoms including dizziness and breathlessness.

For patients already diagnosed with cardiac conditions such as atrial fibrillation, the device could help with monitoring their condition, according to Dr. De Lucia and co-authors.

Source: [European Society of Cardiology \(ESC\)](#)

Image Credit: ESC

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