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Role of wearable device recordings in clinical decision making - The wEHRAbles Young EP survey

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Multiple wearable devices for rhythm analysis have been developed using either photoplethysmography (PPG) or handheld ECG. The aim of this survey was to assess how these technologies impact on physicians' clinical decision-making regarding initiation of diagnostic steps, drug- and interventional therapy.

Methods: The present survey is conducted with support of the scientific network of EHRA Young EP and will be running from October 1st until December 31st, 2019. The online survey includes 10 questions on types of devices, advantages and disadvantages of wearable devices, gaps in evidence as well as case scenarios for patients with supraventricular arrhythmias, symptomatic and asymptomatic atrial fibrillation (AF). Here, we present preliminary data of the survey.

Results: So far, a total of 178 physicians from 34 different countries completed the survey. Mean age was 37 ± 8 years. Most participants work in university hospitals (66%) as electrophysiologists (69%) or cardiologists (21%).

Most participants would trigger further diagnostic steps if a patient with regular palpitations presented a recording of a regular tachycardia (89% for single-lead ECG vs. 86% for PPG), while a single-lead ECG would be sufficient to perform an invasive EP study in most participants (56% vs. 25% for PPG). Participants would be more reluctant to prescribing antiarrhythmic drug therapy in these patients (29% vs. 10%).

In a case scenario of a patient presenting a 30 seconds tracing from a single-lead ECG or PPG device suggesting AF, most participants would trigger further diagnostic steps, Figure 1. A single-lead ECG tracing from a symptomatic AF patient would trigger anticoagulation treatment to a higher extent than in asymptomatic patients (65% vs. 47%). As expected, initiation of antiarrhythmic drug therapy or ablation was suggested to a greater extent in symptomatic patients, Figure 1. PPG tracings would only rarely lead to further therapeutic steps regardless of symptomatology. As main advantages of wearable devices, participants stated faster diagnosis (66%), continuous monitoring opportunities (65%), patient involvement (64%), facilitation of screening (60%) and public availability of monitoring (53%). Main disadvantages participants stated were data overload (67%) and patient-driven instead of clinician-driven screening (43%). Most participants would like to see scientific society recommendations on the use of wearable devices (53%).

Conclusion: In this ongoing survey the preliminary results show that tracings from wearable devices suggestive of arrhythmias are most likely to trigger further diagnostic steps, and in the case of PPG recordings rarely therapeutic interventions. A majority of participants wanted scientific society recommendations on the use of wearables.

Abstract Figure 1