Remote Patient Monitoring and Telehealth

App based monitoring of heart rate via FibriCheck to facilitate teleconsultations: from COVID-19 to clinical practice?

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Background: During the first peak of the COVID-19 pandemic, face-to-face cardiology visits had to be replaced by teleconsultations but lacking the standard performed electrocardiogram. Instead, app-based monitoring of patients' heart rate and rhythm using photoplethysmography (PPG) technology was available as an alternative to aid these teleconsultations.

Purpose: Evaluation of the feasibility to initiate remotely PPG recordings with FibriCheck (Qompium, Hasselt, Belgium) and of the value of using FibriCheck before and after teleconsultation to substitute in-person arrhythmia consultations in three Belgian hospitals (Antwerp University Hospital, Heilig-Hart Hospital Lier and Jessa Hospital Hasselt).

Methods: Patients known with AF or with suspected arrhythmia symptoms during teleconsultation were contacted for the activation of FibriCheck seven days before or after a teleconsultation respectively, as shown in Figure 1. Instructions and a QR code were sent to the patients to download and activate FibriCheck. The code automatically links the application to an online platform available for the treating physician. Patients were asked to record their heart rhythm three times a day and when they experienced symptoms.

Results: In total, 92 patients (mean age: 64.7 ± 17.4) were contacted during the first COVID-19 peak, of which a total of 22 patients declined because not owing a smartphone or tablet (n = 11) or they were not willing or not capable to use FibriCheck (n = 11). A significant age difference was seen between the 22 non-participants versus the 70 participants (mean age 73.8 ± 18.7 vs. 61.9 ± 15.9; p = 0.004). Half of the patients, eligible for PPG monitoring (n = 38, 54.9%), were initiated before a planned (tele)consultation. Of these, four patients (10.5%) were diagnosed with an arrhythmia by using FibriCheck, of which two had frequent extrasystoles and two had a recurrence of AF and rate control was adapted. Of the 32 patients who used FibriCheck after a teleconsultation due to symptomatic palpitations, extrasystoles (n = 3) or high suspicion for a new AF diagnosis (n = 2) was established via FibriCheck. Early in-office evaluation was organised for the patients with a new diagnosis of AF, and rhythm control was initiated. In the majority of patients (57.1%), teleconsultation with FibriCheck was reassuring so that they could be followed-up according to their normal schedule.

Conclusion: During the COVID-19 pandemic, cardiologists were able to obtain important additional information using the FibriCheck application when performing teleconsultations. The possibility to successfully complete teleconsultations using the FibriCheck data, and its broad applicability, create opportunities to implement FibriCheck in standard clinical practice as an easy tool to monitor patients before or after in-person consultations or even hospitalisations.

Abstract Figure.

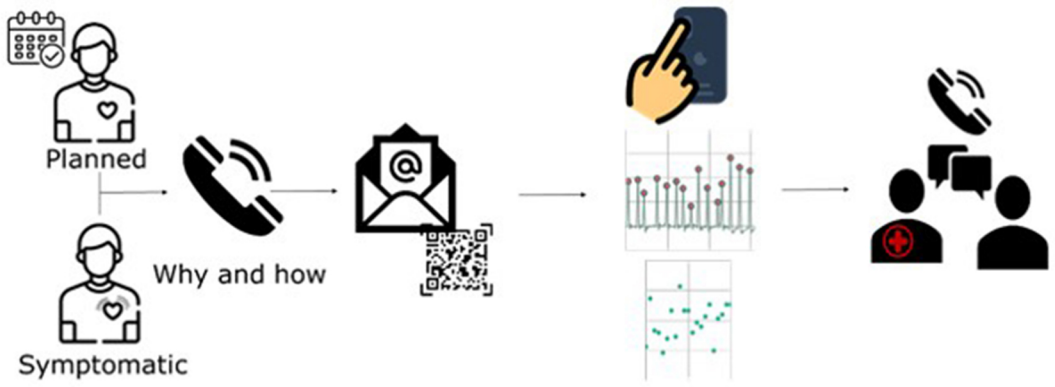

Figure 1: Steps for initiating and usage of FibriCheck for a teleconsultation