



Interventional Cardiologist uses Cardea SOLO® Wearable ECG Sensor to Diagnose New Onset Atrial Fibrillation in a Cardiology Clinic Setting

KEY TAKEAWAYS

- Cardea SOLO Sensor provided 99.4% analyzable ECG data
- Early onset AF detected on day 5
- Cardea SOLO Software used in a cardiology practice setting provides data needed to diagnose new onset AF

BACKGROUND

Wearable technology is quickly becoming the new normal in today's healthcare environment. This emerging technology is driven by a combination of patient and physician preference. For patients, comfort, faster time to diagnosis and ease of use are at the forefront of the desire to use wearable devices. For physicians, the ability to gather data in a quick and efficient manner facilitates their ability to diagnose patients with minimal delays. One area quickly developing in the healthcare wearables industry is the wearable ECG patch. These devices are wire-free, lightweight, water resistant, single-use, disposable, and can gather quality ECG data. The case study below will describe how the wearable Cardea SOLO ECG Sensor was used in a cardiology clinic setting to detect the early onset of Atrial Fibrillation (AF). Atrial Fibrillation is a public health concern as it is estimated that 2.7 to 6.1 million Americans are affected¹, and early detection is essential for limiting the risk of stroke associated with this condition.

CASE DESCRIPTION

A 77-year-old female presented for cardiology care in a lakeside community. The patient presented with complaints of low blood pressure and episodes of dizziness. The patient's history was positive for hyperlipidemia, hypertension, and chronic chest pain. The patient stated that her heart rate had been erratic with blood pressure readings lower than usual.

A resting 12-lead in-clinic EKG showed sinus rhythm with a right bundle branch block. Due to the patient's symptoms of erratic heart rate and dizziness, a Cardea SOLO ECG Sensor was prescribed to assess for potential cardiac arrhythmias. A Cardea SOLO ECG Sensor was applied on the same visit and worn for 6 full days. Upon completing the prescribed wear period of the SOLO Sensor, the data recorded on the sensor's internal module was imported into the Cardea SOLO Software at the clinician's office. The Cardea SOLO Software provided direct access to full disclosure ECG data and automatically generated a draft summary report for physician review and interpretation. Significant findings included multiple episodes of Supraventricular Tachycardias (SVTs) and episodes of Atrial Fibrillation (AF) lasting over four hours. In rare instances isolated PACs were also noted. Frequent Tachycardia runs occurred. The AF presented on Day 5 of sensor wear-time. The patient's diary entry with complaints of a fluttering heart rate corresponded with episodes of Tachycardia.

FIGURE 1. DAY 5 LONGEST AF EPISODE

Longest AF Episode 07/17/2020 09:58:39 PM Duration: 1h 7m HR: 115 [94 - 170]



FIGURE 2. RHYTHMSIGNATURE™ SCATTERPLOT VISUALIZING DAY 5 AF EPISODE

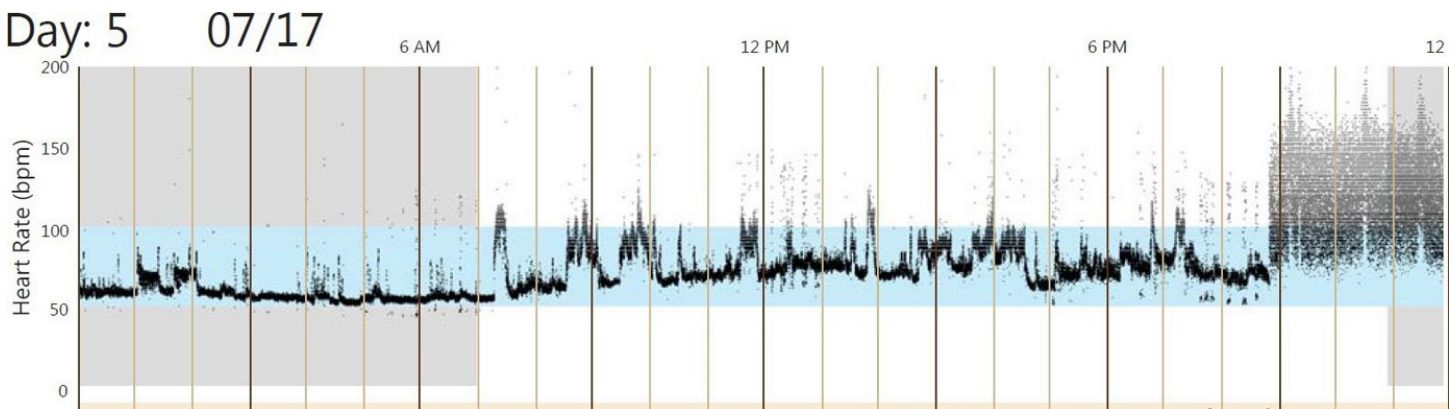


FIGURE 3. SVT WITH FASTEST HEART RATE

SVT With Fastest Heart Rate	# Beats	Duration	Episode Average	Range	Pt Trig?
07/15/2020 01:18:08 PM	8	2s	168 bpm	167-170 bpm	NO

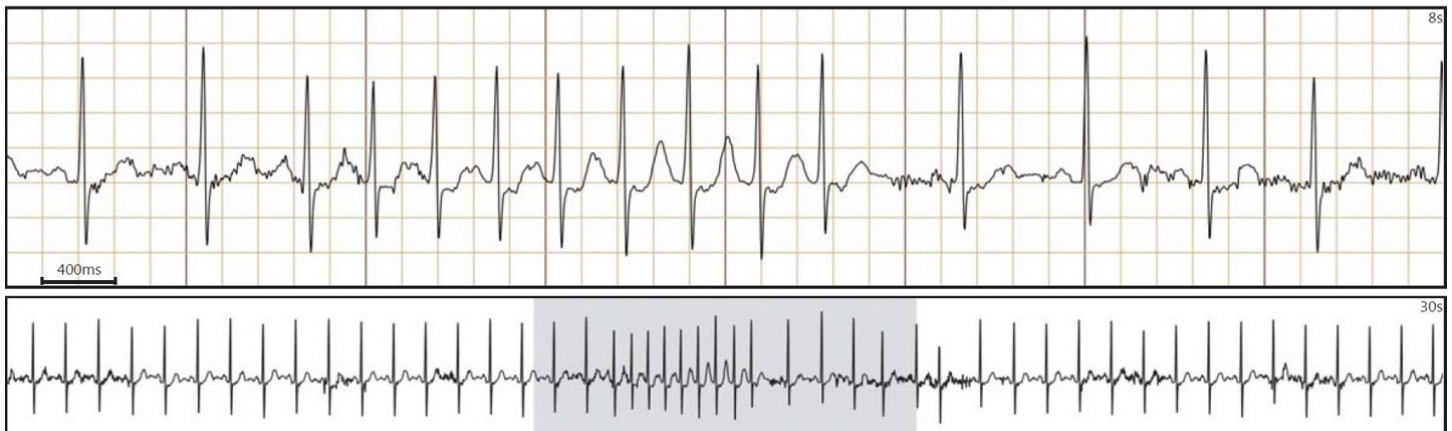
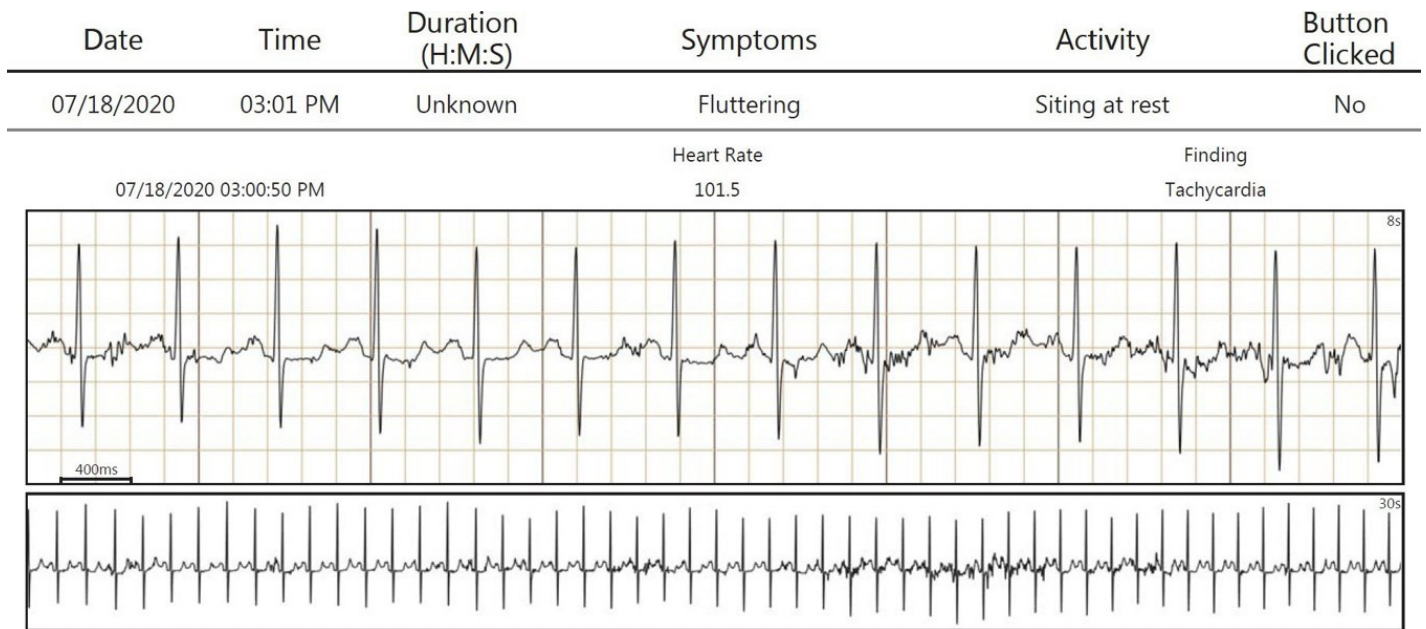


FIGURE 4. PATIENT DIARY ENTRY CORRESPONDING TO TACHYCARDIA



DISCUSSION

Early detection of AF can be beneficial in providing continuity of care in a rural clinic setting. In this case, if a traditional 24-48H Holter monitor had been prescribed, there is a high likelihood that the AF arrhythmia would not have been detected. Many Holter monitors also rely on outsourced ECG data analysis which can cause delays in the diagnostic time by several weeks. In the time waiting for ECG data analysis and the ECG summary report, the patient is going without treatment. This leaves the patient at risk of heart failure or stroke.

The combination of in-clinic sensor application and in-clinic ECG data analysis drastically streamlined the diagnostic timeline compared to traditional technologies such as Holter. The Cardea SOLO Software both simplifies the application process and improves the user experience for these monitors. The patch is wire-free, is easily applied, and remains firmly in place during the duration of the test. This allows the patient to assume normal lifestyle behaviors, including physical activity. Because of this, the monitor is easier for the patient to use and provides a more accurate data depiction. In addition to streamlined diagnosis, the extended wear time of the Cardea SOLO Sensor drastically improved the likelihood of capturing potential cardiac arrhythmias. The AF recorded on Day 5 would not have been recorded by a 24-48H Holter device. The ability to prescribe and apply the Cardea SOLO Sensor in the clinic the same day, and directly download the ECG recordings when returned to the office, provided the patient and clinician the data needed to proceed with treatment without having to wait for third-parties to send back the results.

SUMMARY

Use of the Cardea SOLO System provided multiple clinical benefits to both the patient and physician:

- Automated in office software provided the Cardiologist the data needed to diagnose early onset AF quickly.
- A standard continuous 48-hour Holter monitor would have missed the onset of AF which occurred on Day 5 of ECG monitoring.
- Use of the Cardea SOLO in a cardiology clinic setting provided the ability to assess, diagnose and treat the patient within the standard of care.

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¹American Heart Association, Inc. Get With The Guidelines® Afib. <https://www.heart.org/en/professional/quality-improvement/get-with-the-guidelines/get-with-the-guidelines-afib> [Date accessed 29 August 2024]

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