

# Arrhythmia Assessment With 30-day MCT Patch Challenges Traditional Holter Monitoring

Ruhi Mahajan<sup>1</sup>, PhD, Alok Gambhir<sup>2</sup>, MD, PhD, Sameer Adumala<sup>1</sup>

<sup>1</sup>Zywie, Inc., Atlanta, GA. <sup>2</sup>Northside Hospital Cardiovascular Institute, Atlanta, GA



## BACKGROUND

- Ambulatory Holter monitoring has been a cornerstone for diagnosing arrhythmias. While a traditional Holter records ECG signal for 24-48 hrs., the mobile cardiac telemetry (MCT) patch allows real-time ECG monitoring for up to 30 days.
- An MCT patch provides the ability to analyze long-term ECG data in real-time for timely and improved diagnosis.
- This study aims to identify if cardiac monitoring with a 30-day MCT patch provides better patient outcomes than with the 24-hr Holter. To do so, we compared the arrhythmia and ectopy diagnostic yield of both modalities.

## DATASET

- A retrospective study was designed to analyze ECG data recorded from 14,514 patients (male-43%, female-57%, median age-64 years) who were prescribed to be monitored with Zywie ECG monitors (Zywie, Inc., Georgia).
- The mean ECG analyzable time from 12,974 patients who used Holter and 1,540 patients who used MCT patch was  $18.60 \pm 1.07$  hrs. and  $28.2 \pm 2.4$  days, respectively.

## METHODS

- ZywieAI® algorithm was used to find the incidences of ectopic beats, including premature atrial contraction (PAC) and premature ventricular contraction (PVC).
- Patient's data was also evaluated to identify sinus rhythms -sinus bradycardia (SB) and sinus tachycardia (ST), and any of the following arrhythmias,

a) atrial fibrillation (AF)      b) pause      c) Ventricular tachycardia (VT)

## RESULTS

Fig.1 suggests that the mean arrhythmia diagnostic yield of 38.1% in 30-day MCT studies is significantly different from 29.1% in 24-hr Holter studies ( $p < 0.001$ ). We also analyzed the dataset to identify patients in which at least one arrhythmia was identified excluding SB and ST rhythms. We identified 25% critical arrhythmias in patients with MCT patches in contrast to 9.6% in Holter. Fig. 2 shows that PVC beats were identified in 85.9% and 65.7%, whereas PAC beats in 92.3% and 78.2% of MCT and Holter studies, respectively.

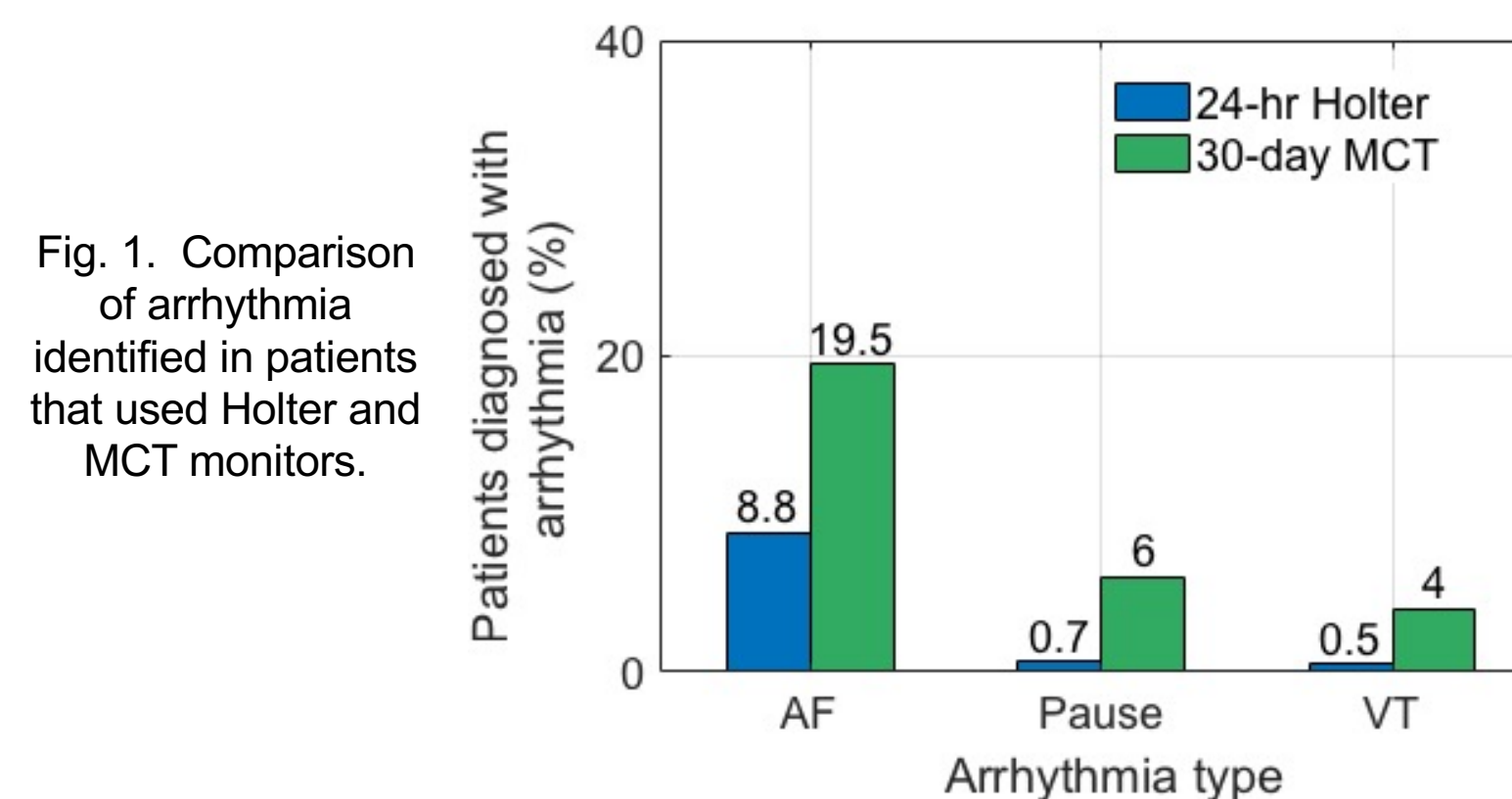


Fig. 1. Comparison of arrhythmia identified in patients that used Holter and MCT monitors.

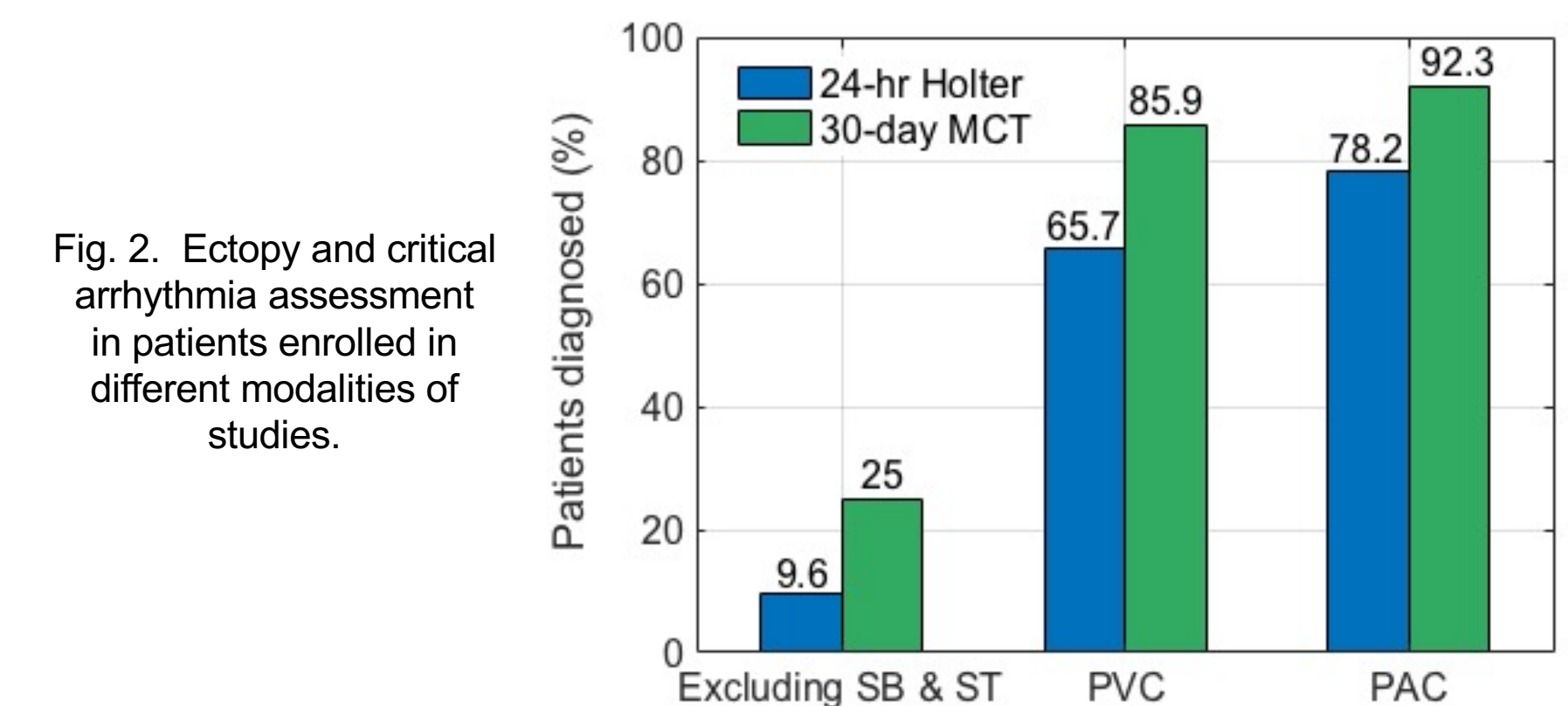


Fig. 2. Ectopy and critical arrhythmia assessment in patients enrolled in different modalities of studies.

## CONCLUSIONS

Results demonstrate that 30-day monitoring with MCT patch provides a better diagnostic yield than 24-hr Holter monitoring. Timely diagnosis with MCT patch can aid in early therapeutic intervention resulting in better patient care.