Ability to Remotely Monitor Atrial High-Rate Episodes Using a Single-Chamber Implantable Cardioverter-Defibrillator with a Floating Atrial Sensing Dipole[1]

MATRIX

HINDRICKS G, BOLLMANN A ET AL.
EP EUROPACE 2023

MATRIX Study Design & Characteristics

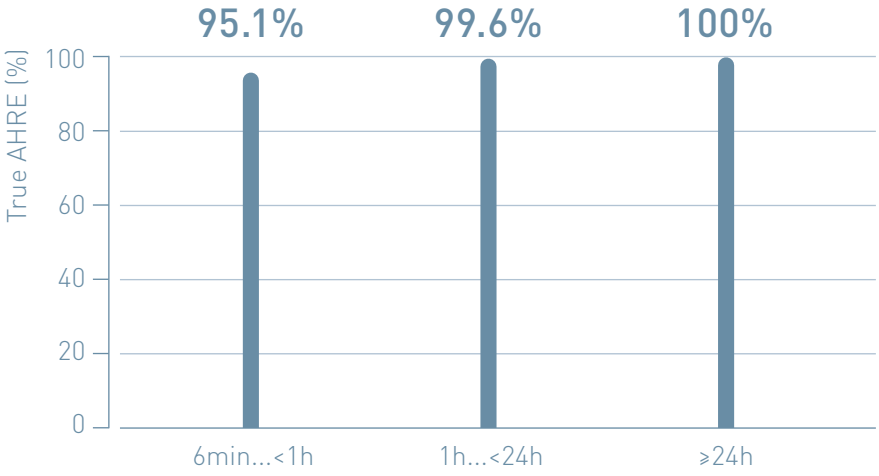
- International, multicenter registry including 119 sites in 24 countries
- 2,054 DX-ICD patients with standard single-chamber ICD indication
- Follow-up 24 months, according to the centers' routine follow-up schemes (i.e., in a real-life setting)
- BIOTRONIK Home Monitoring (HM) recommended

Objectives

- To evaluate a DX-ICD system's ability to remotely monitor atrial high-rate episodes (AHRE) and the progression of arrhythmia duration [i.e., to implement the guideline-recommended remote monitoring of subclinical atrial fibrillation (AF)], and
- To analyze the clinical implications of findings on AHRE detection and progression.

Highly Accurate AHRE Detection

Adjudication of Device-Detected AHRE Shows High Positive Predictive Value



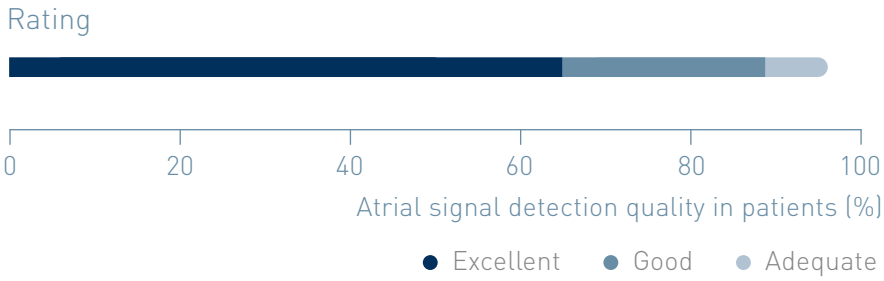
99.7 %

PPV
(AHRE durations ≥1h)

The adjudication of the first occurring AHRE per duration stratum and patient revealed a positive predictive value (PPV) of 99.7% for AHRE durations ≥1h.

BIOTRONIK
excellence for life

Investigators Value the System's Atrial Signal Detection Quality



>95 %

Investigator ratings
"Excellent", "Good" or "Adequate"

Continuously

True at enrollment, 12-month and
24-month follow-ups

Reliable Monitoring

DX-ICDs in Combination with HM Show High Real-Life Transmission Performance

In patients with active HM (n=1,841), the median daily transmission rate was 92.5% during the 24-month follow-up period.[2]

92.5 %

Capability to Implement Guideline-Recommended Subclinical AF Monitoring

The system's high transmission rate, combined with its high AHRE detection accuracy, allows for a reliable, guideline-recommended remote monitoring of subclinical AF.

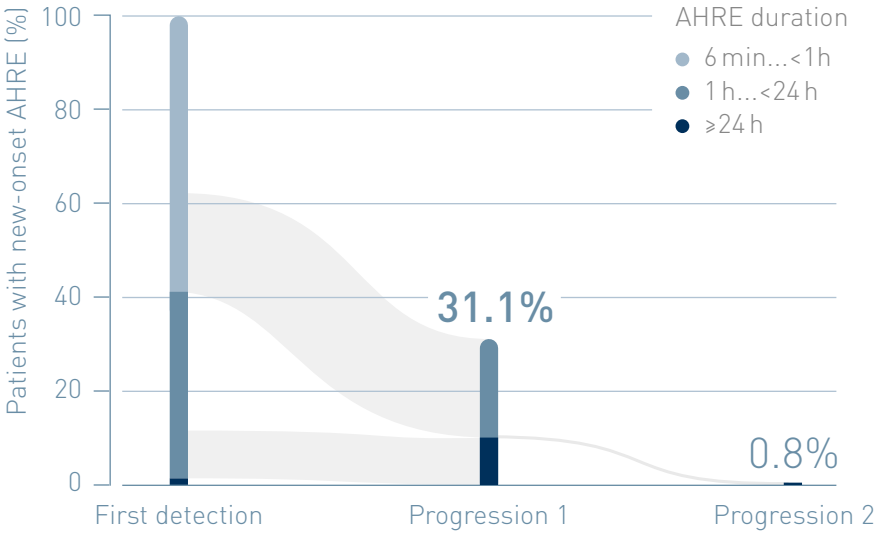
New-Onset AHRE Not Rare, Progression and High Stroke Risk Common

New-Onset AHRE Is Not Rare

New-onset AHRE occurred in 8.2% of patients with no AF history (119/1,451)

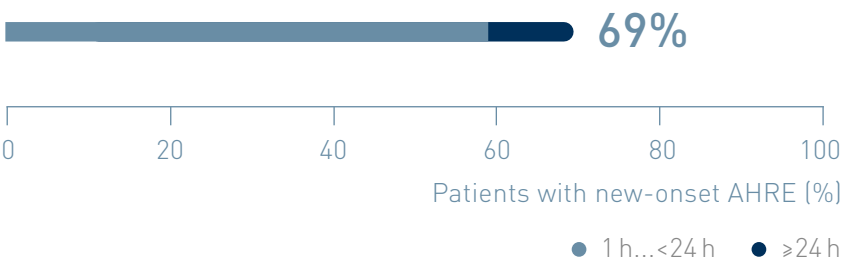
Progression is Common

31.1% of patients with new-onset AHRE showed progression to a stratum of longer duration (37/119)



Episode Duration Often Exceeded 1h

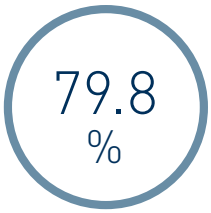
69% of patients with new-onset AHRE (82/119) experienced AHRE of 1h or longer by end of follow-up



Many New-Onset AHRE Patients Were at High Risk of Thromboembolic Events

CHA_2DS_2-VASc stroke risk	OAC: No	OAC: Yes	All
High (CHA_2DS_2-VASc score ≥2 male, ≥3 female)	66	29	95 (79.8)
Mid (CHA_2DS_2-VASc score 1 male, 2 female)	15	3	18 (15.1)
Low (CHA_2DS_2-VASc score 0 male, 1 female)	5	1	6 (5.0)
All	86	33	119 (100)

Data are shown as n (%)



of patients with new-onset AHRE had a high CHA_2DS_2-VASc stroke risk (95/119)

of these were not on OAC therapy at baseline (66/95)

Clinical Relevance

- MATRIX is the largest clinical evaluation of DX Technology to date
- In this unselected, real-life setting, the findings confirm that DX Technology, combined with Home Monitoring, allows for reliable, guideline-recommended remote monitoring of subclinical AF
- The clinical relevance of AHRE monitoring is underlined by the fact that patients with new-onset AHRE often experience AHRE progression and are at substantial risk of thromboembolic events, while most of them are not on OAC.

AF = atrial fibrillation, AHRE = atrial high-rate episode, HM = BIOTRONIK Home Monitoring, ICD = implantable cardioverter-defibrillator, OAC = oral anticoagulation

1 Source: Hindricks G, Bollmann A et al. Ability to remotely monitor atrial high-rate episodes using a single-chamber implantable cardioverter-defibrillator with a floating atrial sensing dipole. Europace. 2023. doi: 10.1093/europace/euad061.

2 "Active": at least 1 HM transmission was received during the 24 months of follow-up.

BIOTRONIK SE & Co. KG
Woermannkehre 1
12359 Berlin / Germany
www.biotronik.com

BIOTRONIK
excellence for life