

Implantable Loop Recorders in patients with Brugada Syndrome

The BruLoop Study

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EHRA₂₀₂₄



Declaration of Interest

- I have nothing to declare

Background: Syncope and Brugada

Syncope occurs in up to 30% of BrS patients

2022 ESC Guidelines on Ventricular Arrhythmias

ICD implantation should be considered in patients with type 1 Brugada pattern and an arrhythmic syncope.^{990,992,996}

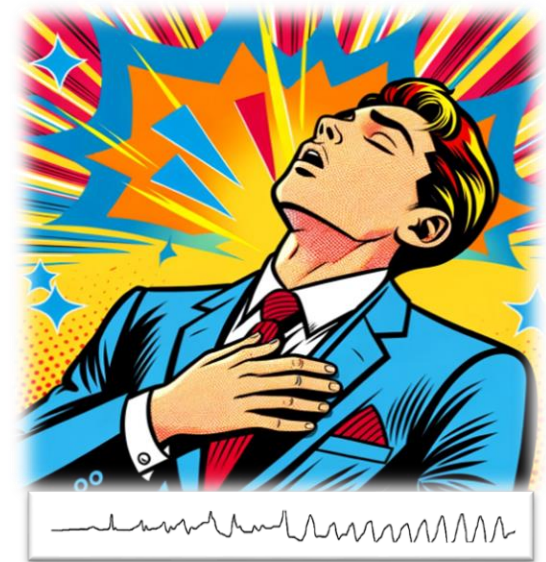
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Implantation of a loop recorder should be considered in BrS patients with an unexplained syncope.^{997,999}

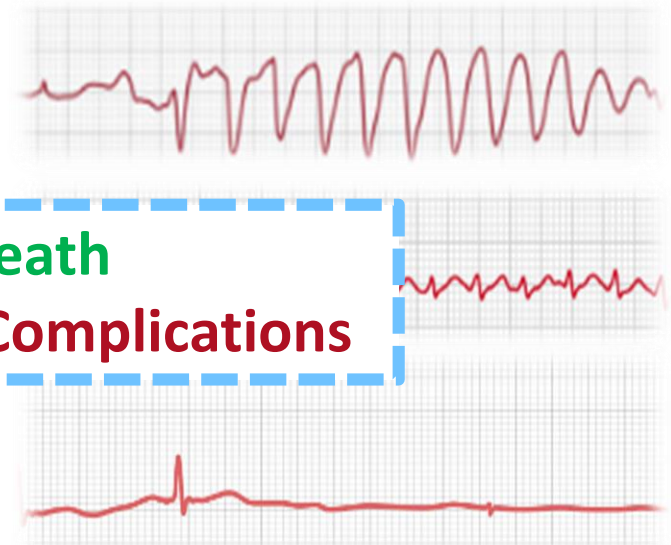
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Background: Syncope and Brugada

- Differentiating **unexplained** and **arrhythmic** is challenging
- Arrhythmic syncope may have **different causes**
- **Atrial-** an **Mitigate the Risk of Death**
never been **Avoiding Over-Treatment and Complications**
- Evidence supporting the use of ILR in unexplained syncope comes from a single center 50 patients study with 7 syncope (!)



Objectives

- Identify **the precise etiology of unexplained and cardiac syncope** in a large cohort of BrS patients.
- Report the **prevalence of ventricular, atrial and bradyarrhythmias** in SYMPTOMATIC and ASYMPTOMATIC BrS patients followed with **continuous monitoring** (via ILR)



Study Design & Patients Population



18

International centers

Retrospective Multicenter Study

INCLUSION criteria

- Diagnosis of BrS (Shanghai score ≥ 3.5)
- ILR implanted after diagnosis of BrS

EXCLUSION Criteria

- less than 50% of required baseline data
- previously diagnosed arrhythmias or taking AADs



Definitions

Symptomatic if the reason for ILR implantation was:

- **Syncope** (only unexplained or arrhythmic)
- **Palpitations**

Bradycarrhythmias (of non vaso-vagal origin),

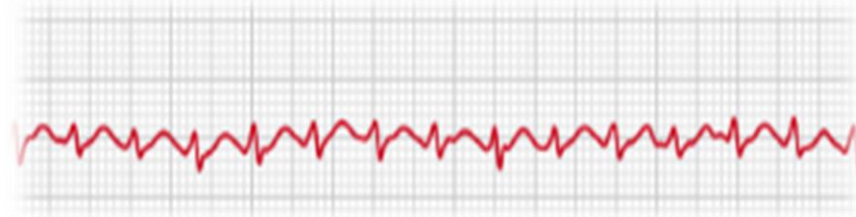
- Sinus arrest
 - of 3 to 6 seconds if symptomatic,
 - longer than 6 seconds if asymptomatic,
- Advanced AV block
 - 2nd degree type II AV block
 - 3rd degree AV block



Definitions

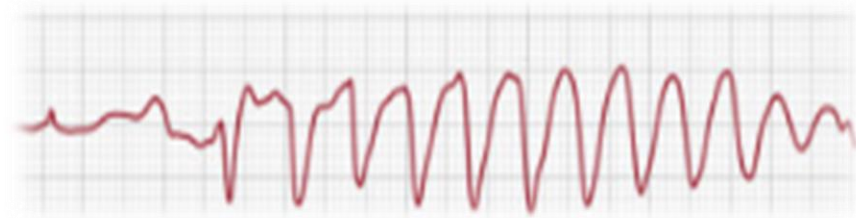
Atrial arrhythmias

- Atrial fibrillation (AF)/flutter (AFL)
- Atrial tachycardia
- Paroxysmal supraventricular tachycardia (PSVT)



Ventricular Arrhythmias

- NSVT causing syncope or pre-syncope
- Monomorphic sustained VT
- Polymorphic VT or VF



Baseline Characteristics

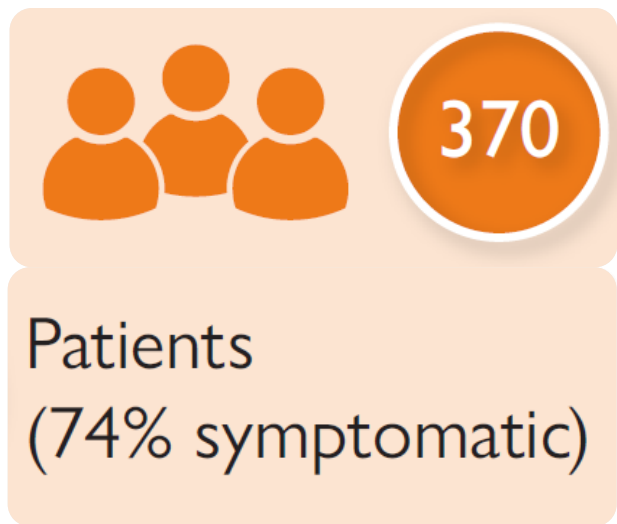


Table 1: Characteristics of the participants at baseline

Characteristics	Total n=370
Age – mean (SD), years	43.5 ± 15.9
Female Sex – no.(%)	125 (33.8%)
Proband status	229 (61.9%)
Family history of BrS	111 (30.1%)
Family history of SCD	101 (27.3%)
Spontaneous Brugada type 1 ECG	150 (40.5%)
SCN5A P/LP variant	58/201 (29.4%)
VF induction during EP study	18/224 (8.0%)
Symptoms before ILR	
Syncope	190 (51.4%)
Palpitations	84 (22.7%)
No symptoms	96 (25.9%)
Syncope characterization before ILR	
Suspected arrhythmic	9 (4.7%)
Unexplained	181 (95.3%)

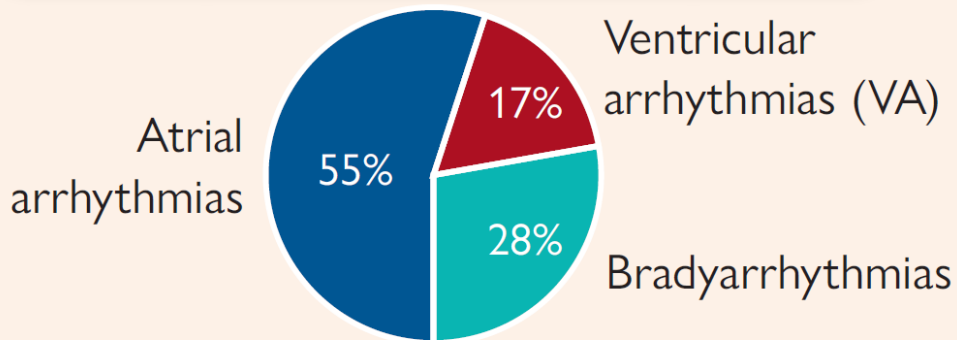
Follow-up



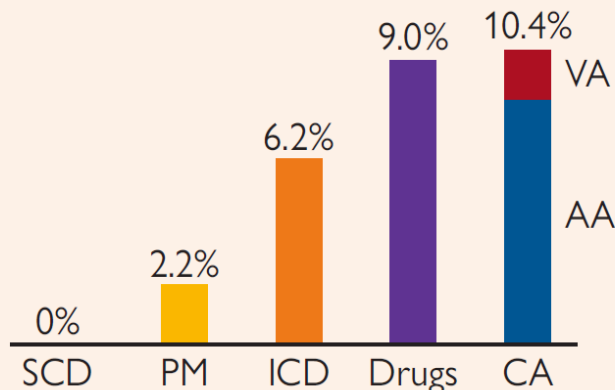
3 years of follow-up

114 arrhythmic events were recorded in 94 patients

Arrhythmic events (25.4%)



Clinical implications (18.4%)

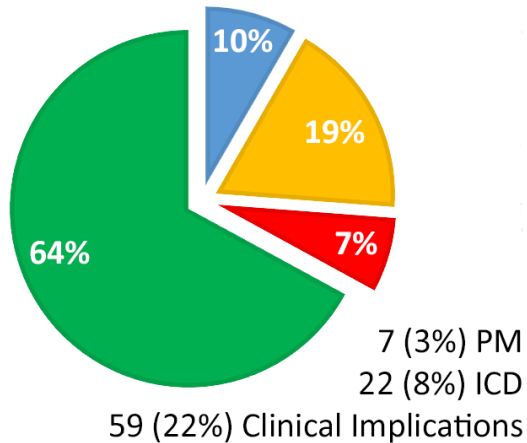


Predictors of Arrhythmias

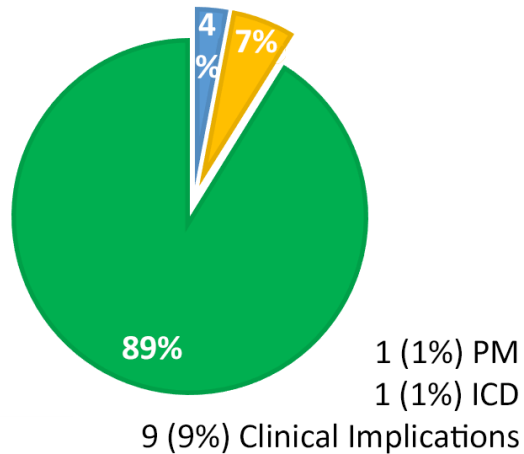
Symptoms before ILR implant

HR 2.5, 95% CI 1.3-4.9, p=0.001

Symptomatic - n = 274

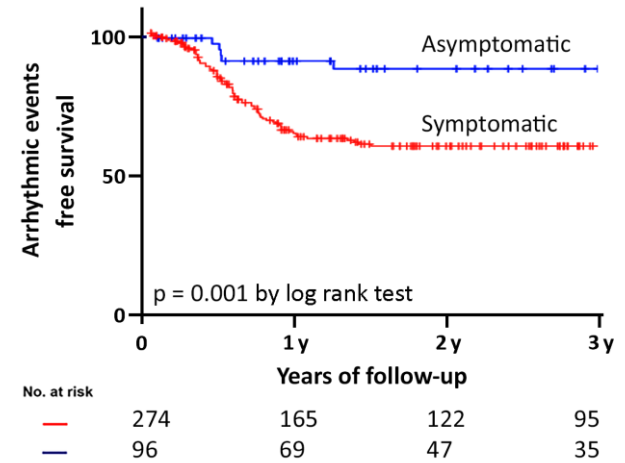


Asymptomatic - n = 96

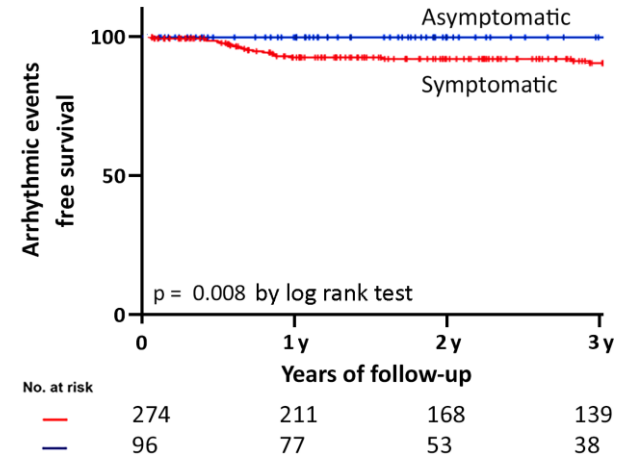


■ Bradyarrhythmias ■ Atrial Tachyarrhythmias ■ Ventricular Tachyarrhythmias ■ No arrhythmias

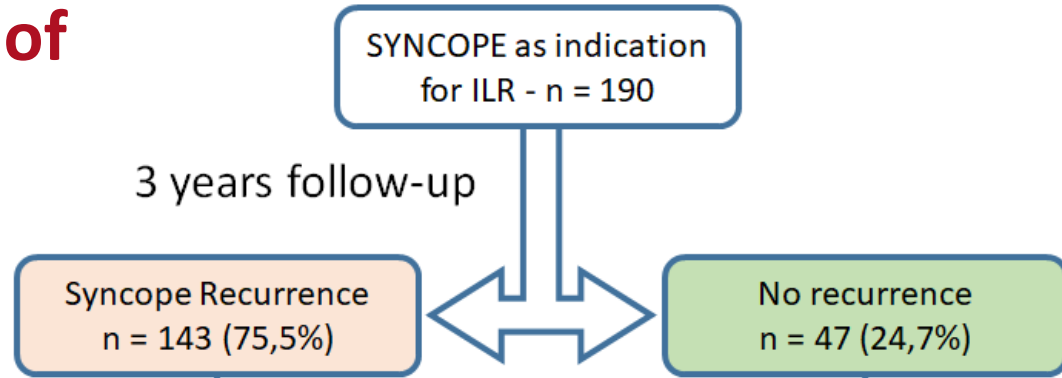
Overall arrhythmias



Ventricular arrhythmias



Characterization of Syncope



trial
hythmias (AA)

entricular
hythmias (VA)

Conclusions



- (i) ILR implantation in SYMPTOMATIC patients with BrS identifies an ARRHYTHMIC EVENT in nearly **30%** of the patients (*mostly bradyarrhythmias or atrial arrhythmias*)
- (ii) True ARRHYTHMIC SYNCOPES occurs in **22%** of patients with unexplained syncope and mostly (60%) caused by BRADYARRHYTHMIAS

Thanks for your attention

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