

SARS-CoV-2, COVID-19 and inherited arrhythmia syndromes

Inherited arrhythmia syndromes

- ♥ Long QT syndromes
- ♥ Brugada syndrome
- ♥ Catecholamine-induced PMVT/VF
- ♥ Short QT-tijd syndrome
- ♥ other more rare syndromes

Elena Arbelo (Sp)
Arthur Wilde (NL)



European
Reference
Network

for rare or low prevalence
complex diseases

⚙️ **Network**
Heart Diseases
(ERN GUARD-HEART)

● **Coordinator**
Academic Medical
Center Amsterdam —
The Netherlands



SARS-CoV-2, COVID-19

Important symptoms of an infection

♥ Fever	89%
♥ Cough	68%
♥ tiredness	38%
♥ shortness of breath	19%
♥ Myalgia	15%
♥ Headache	14%
♥ Diarrhea	4%



SARS-CoV-2, COVID-19

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Inherited arrhythmia syndromes

	Fever	Medication
♥ Long QT syndromes	±	++
♥ Brugada syndrome	++	±
♥ Catecholamine-induced PMVT/VF	-	++
♥ Short QT-tijd syndrome	-	-
♥ other more rare syndromes		

+ attention, - no interaction



Brugada syndrome, COVID-19

♥ Fever

++

♥ Medication (only propafol)

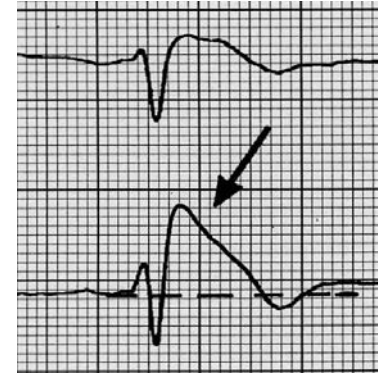
±

♥ No intercation with devices



Brugada syndrome, ‘SCN5A disease’

- ♥ Brugada syndrome requires a ‘type 1’ ECG
- ♥ “SCN5A disease”

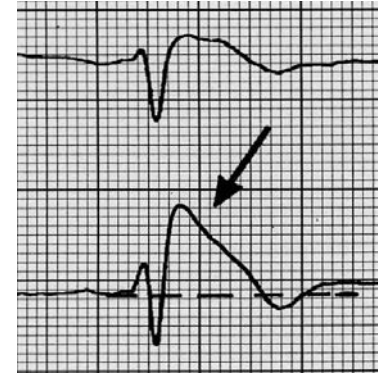


Brugada
syndrome

SCN5A
disease

Brugada syndrome, ‘*SCN5A* disease’

- ♥ Brugada syndrome requires a ‘type 1’ ECG
- ♥ “*SCN5A* disease”

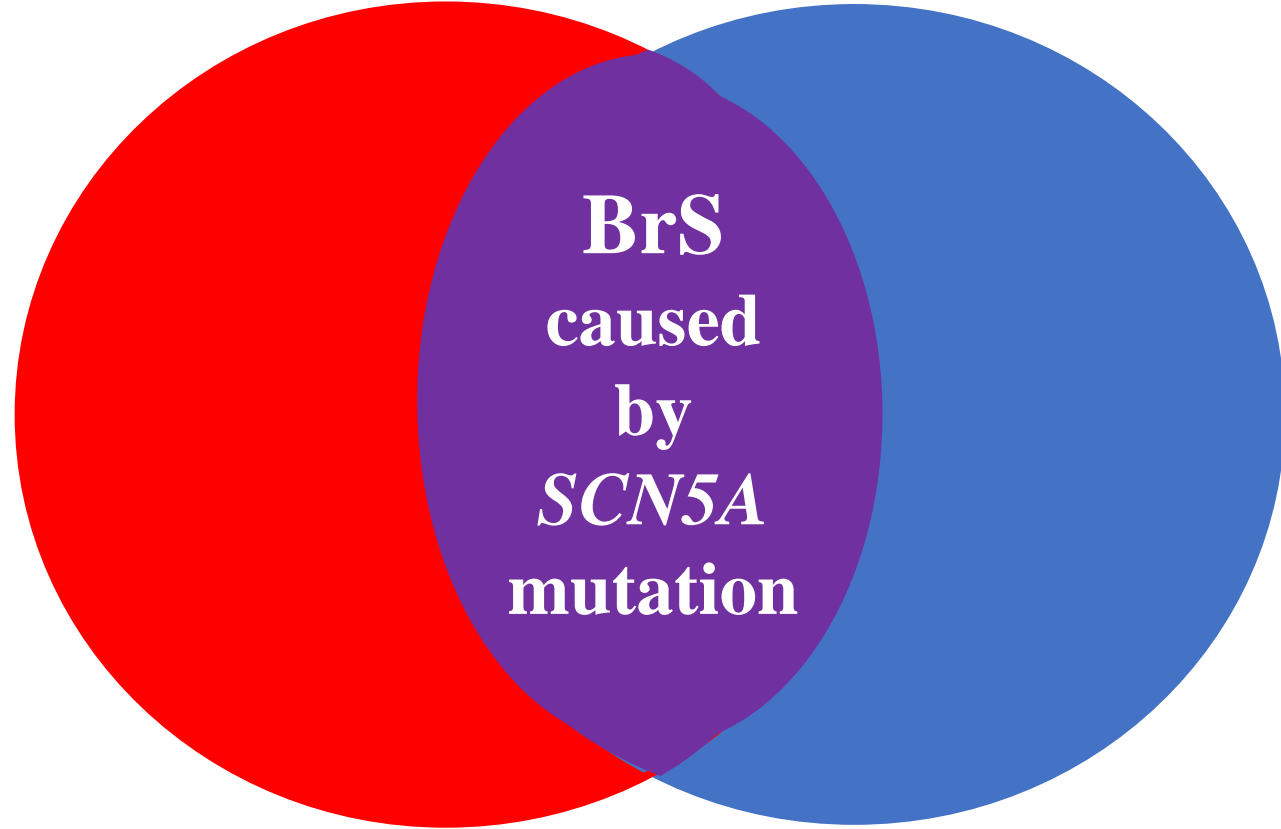
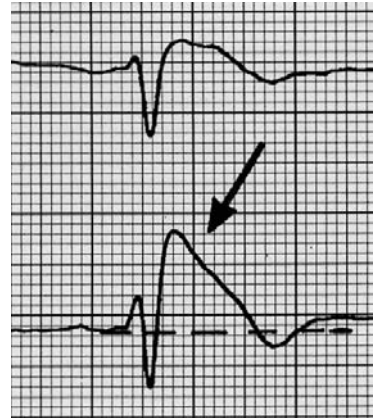


Brugada
syndrome

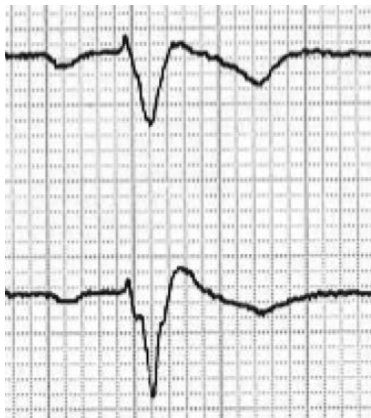
SCN5A
disease

Brugada syndrome, 'SCN5A disease'

Brugada syndrome

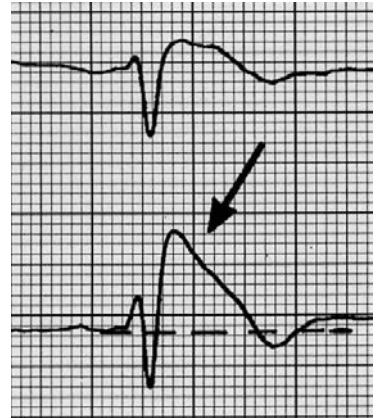


'SCN5A disease'

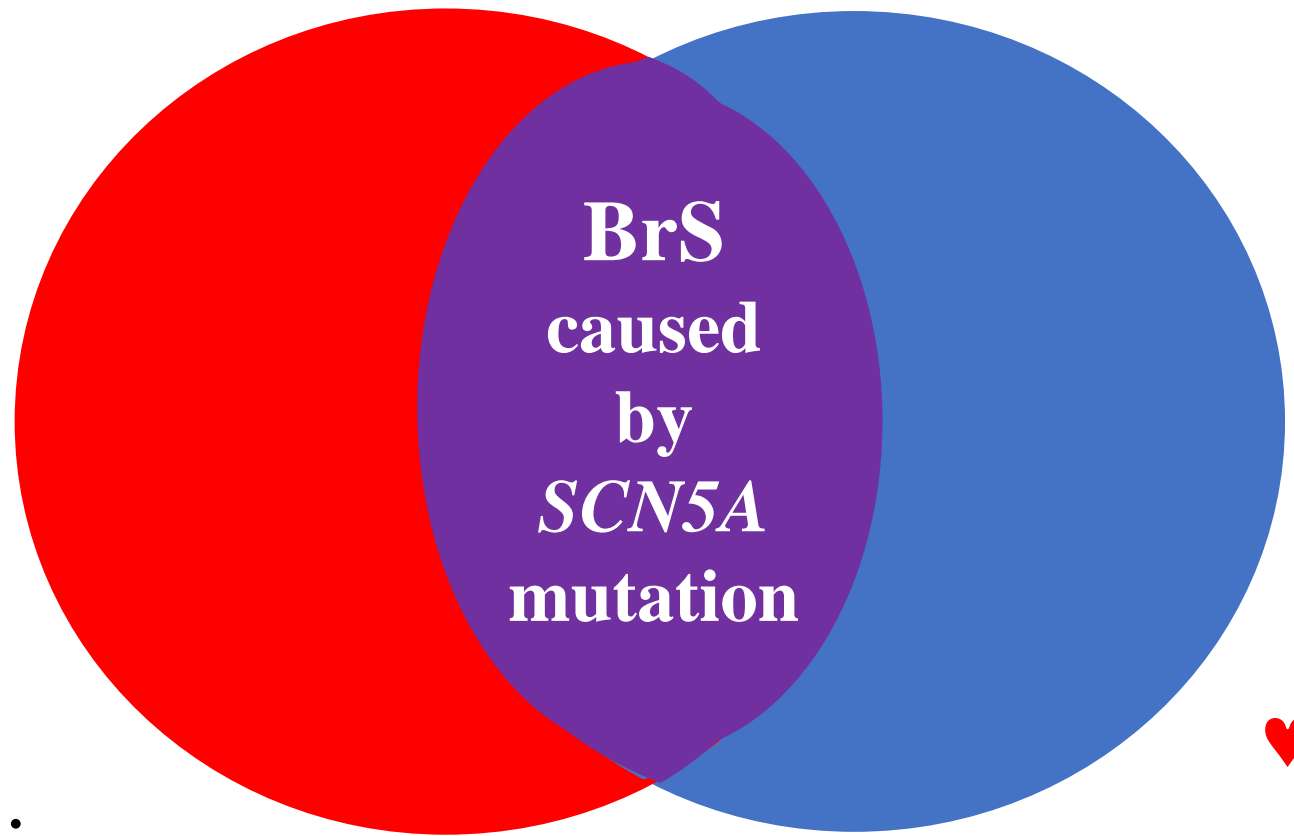


Brugada syndrome, 'SCN5A disease'

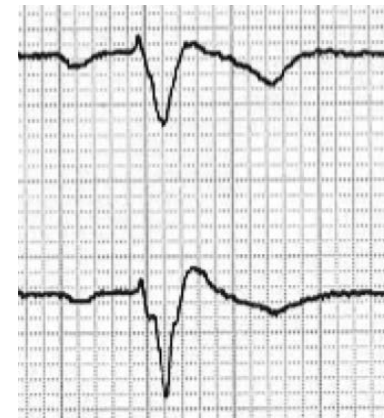
Brugada syndrome



♥ BrS without *SCN5A* mutation



'*SCN5A* disease'



♥ *SCN5A* disease without BrS



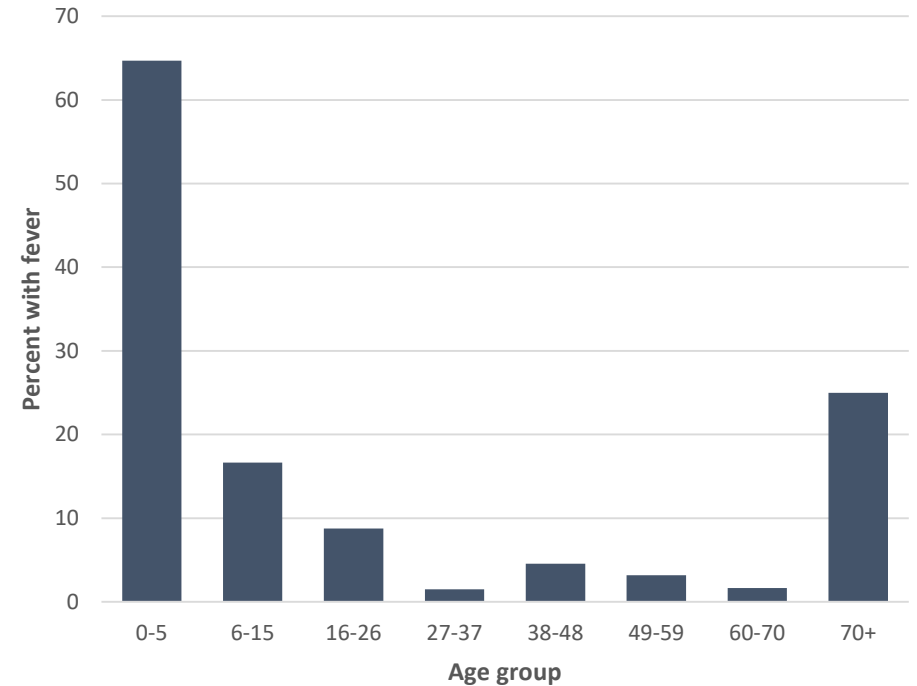
Brugada syndrome and Long QT syndrome

- ♥ Brugada syndrome and Long QT syndrome
- ♥ is always an “*SCN5A* disease”



Brugada syndrome, fever

- ♥ Worldwide database, 678 patients with symptoms
- ♥ 588 with known temp. at the moment of the symptom
- ♥ 35 of the 588 had fever (6%)
- ♥ 13/35 younger than 16jr



Brugada syndrome, fever

- ♥ 77% of the children has an *SCN5A* mutation (adults 27%)
- ♥ Review literature (2018): 40 fever-related cases
- ♥ Genetics available in 19 pts: 13 *SCN5A* + (68%)
- ♥ Own experience (2008*): 4 fever related: 3 *SCN5A* +

Hence, the presence of a *SCN5A* mutation brings an additional risk

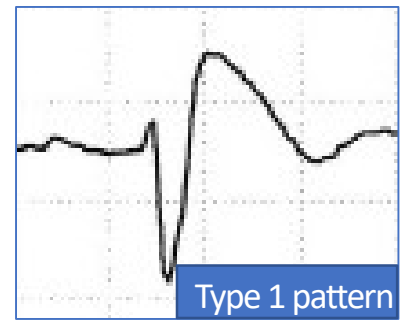


Brugada syndrome

All BrS pts with fever/suspicion of diagnosis COVID infection

- Self treatment with paracetamol/Ibuprofen

ICD present?



Brugada syndrome

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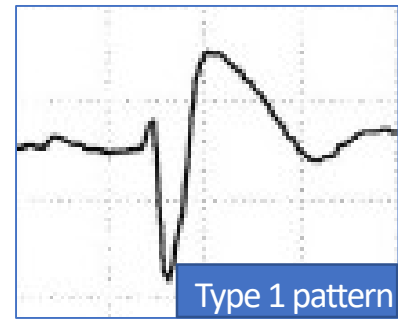
ICD present?

Yes

Brugada pts with ICD

Follow public health protocol
+/- Self-isolation at home

Attend hospital only if other emergencies require treatment e.g. syncope, shocks, breathlessness



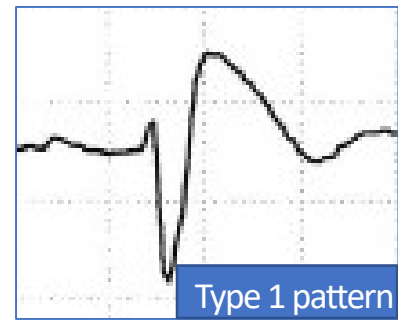
Brugada syndrome

All BrS pts with fever/suspicion of diagnosis COVID infection

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ICD present?

Yes | No



Brugada pts **with** ICD

BrS ptn **without** ICD

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High-risk group?

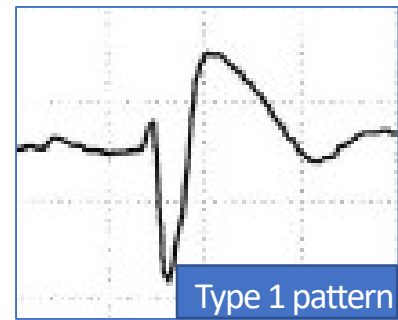
- Sodium channel mutation carrier
- <26-year-old
- >70-year-old
- Spontaneous and/or known fever induced type 1 ECG pattern
- Cardiac syncope (NOT a simple faint)

Brugada syndrome

All BrS pts with fever/suspicion of diagnosis COVID infection

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ICD present?



Brugada ptn **with** ICD

BrS ptn **without** ICD

Yes | No

Low-Risk Group

Drug induced Type 1 BrS

- No cardiac syncope at any time
- No spontaneous type 1 at any time

High-risk group?

- Sodium channel mutation carrier
- <26-year-old
- >70-year-old
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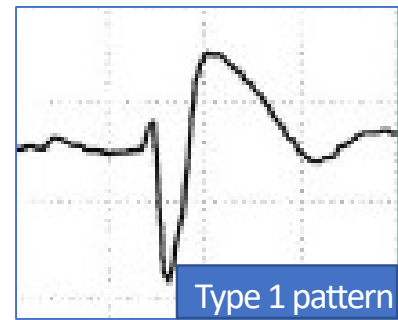
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ICD present?



Brugada ptn **with** ICD

BrS ptn **without** ICD

Yes | No

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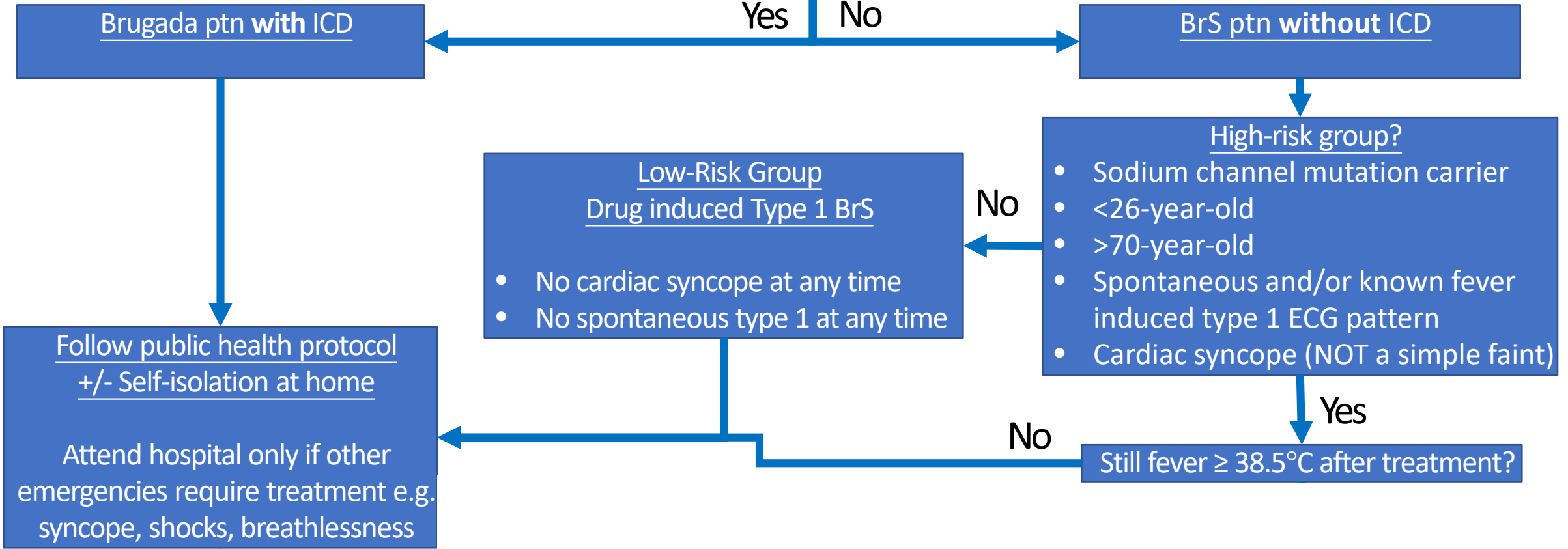
No

Yes

Still fever $\geq 38.5^{\circ}\text{C}$ after treatment?

Follow public health protocol
+/- Self-isolation at home

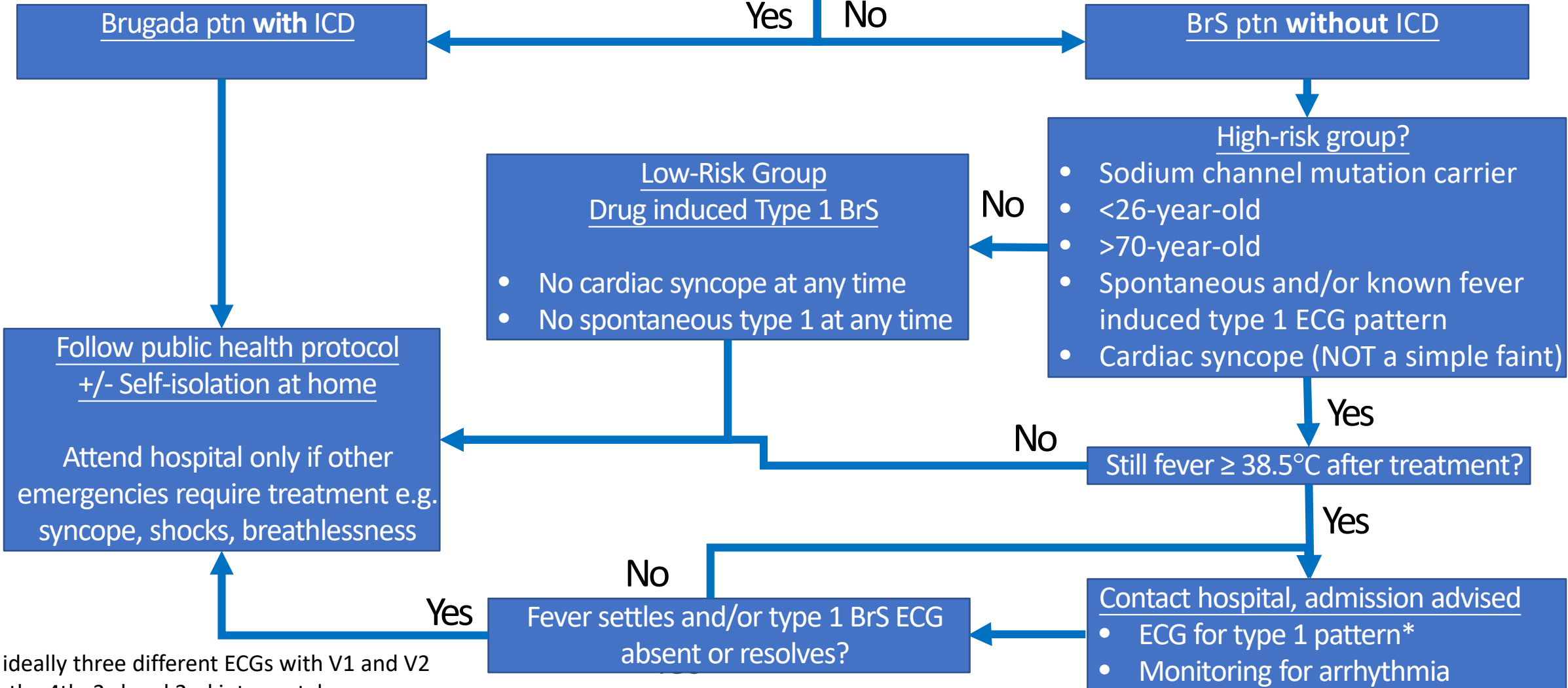
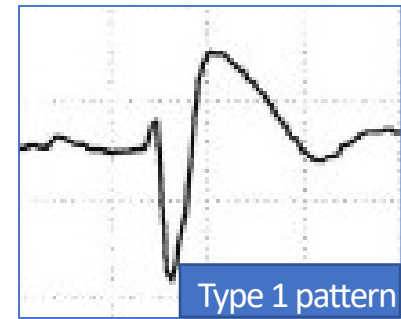
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* ideally three different ECGs with V1 and V2 in the 4th, 3rd and 2nd intercostal spaces

COVID-19 and Brugada syndrome

♥ Fever/infection in BrS patients!

♥ in particular patients with a sodiumchannel dis.



COVID-19 and Brugada syndrome

♥ Questions?

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♥ <https://guardheart.ern-net.eu/>



Network
Heart Diseases
(ERN GUARD-HEART)

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