Atrial fibrillation as a marker of clinical severity in Brugada Syndrome

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Introduction

Sodium channels dysfunction in Brugada Syndrome (BS) predisposes to phase-2 reentrant ventricular arrhythmias

Mutations can also be present in atrial myocites and the same mechanism is thought to cause of atrial arrhythmias

AF prevalence in patients with BS has been reported to range from 6 to 38%

It is **hypothesized** that, in BS patients, AF can possibly indicate higher grade of Na+ channels dysfunction as well as BS clinical manifestations: polymorphic VT/VF and cardiac conduction disease

AIM: In this analysis, our **aim** is to evaluate **AF** as a prognostic marker of poorer outcomes in a low risk Brugada Syndrome patients population

Methods

Prospective and observational study
278 patients with BS diagnosis had been included

n=278

- **Group A:** Patients with AF episodes documented before BS diagnosis (n=14)
- **Group B:** Patients without documented AF episodes before BS diagnosis (n=264)

Exclusion: Patients with high risk criteria for sudden cardiac death at the time of diagnosis, were excluded, and underwent ICD implantation

Follow-up: 59.3±49.3 months

End-points: - Non vaso-vagal syncope + documentation of polymorphic VT/VF
- Cardiac conduction system diagnosis

Results

Baseline characteristics	Total (n=278)	Group A (n=14)	Group B (n=264)	p-value
Age (years old)	43.6±14.2	54.4±14.3	43.1±14.0	0.004 (Mann-Whitney)
Gender (♂)	27.1%	21.6%	28.6%	ns (Exact Fischer)
"Proband" patient	78.1%	100%	76.9%	0.045 (Exact Fischer)
Mutation identification	19.3% (33/171)	14.3% (1/7)	19.5% (32/164)	ns(Mann-Whitney)
End-points incidence				
Follow-up duration	59.3±49.3	59.6±49.1	59.3±49.5	ns (Mann-Whitney)
Non vaso-vagal syncope	3.59%	14.3%	3.4%	0.09(Exact F-Fischer)
VF/polymorphic VT	7.2%	28.6%	6.0%	0.012 (Exact F-Fischer)
Monomorphic VT	1.08%	0.0%	1.1%	ns (Exact F-Fischer)
End-point (syncope + VT/VF)	11.87%	35.7%	10.6%	0.016 (Exact F-Fischer)
Death during follow-up	1.13%	0.0%	1.14%	ns (Exact F-Fischer)
Time to syncope / VT/VF (months)	37.9±32.7	21.8±24.2	31.4±30.5	ns (Mann-Whitney)
Nº of events Average ± SD (median, P25-P75)	95	12 0.92±2.05 0; 0-0	83 0.35±1.33 0; 0-0	 ns (Mann-Whitney) ns (Kruskall-Wallis)
AF documentation in FU	4.3%	21.4%	3.4%%	0.017 (Exact F-Fischer)
Conduction system disease 1st degree AV block Average maximal PR duration (ms) Average maximal QRS duration (ms)	19.1% 11.2%	42.9% 28.6% 209.4±53 120.8±29	17.8% 10.2% 189.8±32.7 110.7±17.5	0.032 (Exact Fischer) 0.051 (Exact F-Fischer) ns (Mann-Whitney) ns (Mann-Whitney)

Univariate logistic regression	p-value	OR	IC 95%
AF before diagnosis vs. Events in Follow-up	0.0092	4.68	1.46 – 14.96
AF before diagnosis vs. Conduction disease in FU	0.0275	3.46	1.14 – 10.44

Multivariate logistic regression	p-value	OR	IC 95%
End point:			
Syncope (non-VV) + VF/polymorphic VT			
Variables:			
AF before diagnosis	**0.035**	**4.18**	**1.11– 15.78**
VF/Polymorphic VT before diagnosis	-	24.078	6.17-93.8
Non vaso-vagal syncope before diagnosis	**0.0001**	**5.18**	**2.22-12.08**
SCD in relatives < 55 yo	0.1025	2.101	0.86-5.12
End point:			
Conduction cardiac disease during follow-up			
Variables:			
AF before diagnosis	0.08	2.8	0.8 -8.93
Non vaso-vagal syncope before diagnosis	**0.0001**	**3.65**	**1.89 – 7.07**
SCD in relatives < 55 yo	0.078	1.8	0.93 – 3.55

Conclusions:

- Patients with AF episodes before, or at the time, of BS diagnosis had higher incidence of syncope + polymorphic VT/VF and cardiac conduction disease during follow-up

- This supports the hypothesis that AF can be a marker of higher degree of sodium channels dysfunction

- Whether it can be used in the future for risk stratification as a marker of worst prognosis in non-high risk patients, should be evaluated with larger samples and longer follow-up periods

Conflicts of interest

The authors full disclosure any potential conflicts of interest

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