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 ventricular arrhythmias. The same mechanism is thought to be also responsible for a higher predisposition to atrial arrhythmias. So, is hypothesized that atrial fibrillation (AF) may be part of clinical manifestations in BS patients, possibly associated with higher level of channel dysfunction.
Aims: To evaluate if documented AF episodes before BS diagnosis are associated with poorer prognosis, namely arrhythmic events and conduction cardiac system disease.
Methods: Prospective study. 278 patients with BS have been included. Two groups were established: A, with patients with documented AF episodes (previous or at the time of BS diagnosis) (n=14); and B, composed by those without documented AF episodes at the time of BS diagnosis (n=264). Syncope and ventricular tachycardia/fibrillation (VT/VF) events incidence during follow-up was evaluated, as well as cardiac conduction system disease incidence.
Results: Patients from group A were older (54.4 ± 14.3 vs 43.1 ± 14.0, p=0.004), and were more frequently the "proband" (100% vs 76.9%, p=0.045). Mutations in gene SCN5A were identified in similar proportions (28.5% vs 21.6, p=ns) among those who were genotyped. Previous syncope and episodes of VT/VF incidences were not significantly different at the time of inclusion (42.9% vs 20.8%, p=0.09) and (7.1% vs 4.5%, p=ns), respectively. End points incidences during a follow-up of 59.3 ± 49.4 months are shown in table 1. At multivariate analysis, documented AF before BS diagnosis was an independent predictor of future syncope or VF/VT events

End-points incidence	Total (n=278)	Group A (n=14)	Group B (n=264)	p-value
Non vaso-vagal syncope	3.59%	14.3%	3.4%	0.09
VF/polymorphic VT	7.2%	28.6%	6.0%	0.012
Monomorphic VT	1.08%	0.0%	1.1%	ns
End-point (syncope + VT/VF)	11.87%	35.7%	10.6%	0.016
Death during follow-up	1.14%	0.0%	1.14%	ns
AF in follow-up	4.3%	21.4%	3.4%%	0.017

Conduction system disease	19.1%	42.9%	17.8%	0.032
AV block ≥ 1st degree	11.2%	28.6%	10.2%	0.051
Average maximal PR duration (ms)		209.4±53.7	189.8±32.7	ns
Average maximal QRS duration (ms)		120.8±29.1	110.7±17.5	ns

Conclusion: Patients with documented AF before or at the time of BS diagnosis had higher incidence of a composed end-point of syncope and VT/VF episodes, as well as cardiac conduction system disease incidence. This facts support the hypothesis that AF can be a marker of higher degree of global sodium channel dysfunction and, consequently, more severe clinical manifestations.