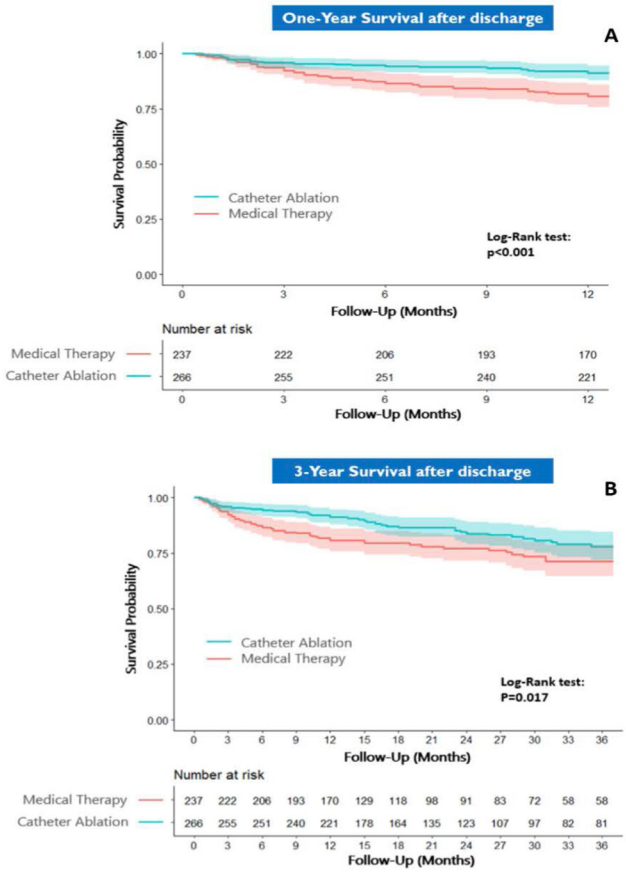

Fig. 1 Kaplan-Meier curves of the one-year (panel A) and 3-year survival (panel B) after discharge following the initial hospitalization, according to treatment group.

patient characteristics associated with the use of CA or medical therapy.

Method A propensity score (PS) matching analysis was performed in 780 consecutive patients admitted for ES in the intensive care units of four French tertiary centers. PS-matching (1:1) based on main characteristics associated with the use of CA was performed, resulting in two groups of 288 patients with balanced characteristics.

Results After PS-matching, patients who underwent CA ($n = 288$) and patients treated with medical therapy ($n = 288$) did not present any significant difference regarding main demographical characteristics, ES presentation and management. Compared to medical therapy, CA was associated with a significantly lower rate of ES recurrence at one year (5% vs. 26%, $P < 0.001$). Similarly, CA was associated with a higher 1-year (91% vs. 81%, $P < 0.001$) and 3-year (78% vs. 71%, $P = 0.017$) survival after discharge (Fig. 1). In subgroup analyses, effect of ablation therapy remained consistent in patients older than 70 yo (HR 0.39, 95%CI 0.24–0.66), with substantial efficacy in patients with LVEF < 35% (HR 0.39, 95%CI 0.27–0.59, $P < 0.001$).

Conclusion In propensity-matched analyses, performing catheter ablation in patients with structural heart disease admitted for electrical storm appears to be significantly associated with reduced in-hospital, one-year, and three-year mortality when compared to medical therapy.

Disclosure of interest The authors declare that they have no competing interest.

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Autonomic nervous system activity before atrial fibrillation as assessed by heart rate variability: A tool for neuromodulation?

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Abstract

Introduction Neuromodulation techniques are increasingly used in atrial fibrillation (AF) ablation, and they have yielded conflicting and sometimes disappointing results in clinical trials, which might be related to the lack of appreciation of complex neural circuitry. The action of the autonomic nervous system (ANS) can be estimated from sinus rhythm variability (HRV).

Objective To investigate the significance of the changes of the intracardiac nervous system before the onset of AF by following the evolution of HRV in a large new cohort of unselected patients.

Method From our Holter database, 1319 paroxysmal AF episodes from 872 patients were labeled. Of these, 904 episodes were preceded by at least 30 minutes of sinus rhythm and lasted at least 5 minutes. The following variables were calculated: VLF components (frequency < 0.04 Hz); LF components (0.04–0.15 Hz); HF components (0.15–0.40 Hz); and the LF/HF ratio. Spectral HRV values were calculated beat by beat in five-minute periods starting at least 30 minutes before AF onset, using sliding windows to allow dynamic assessment of changes. To discriminate bewteen vagal and adrenergic AF, we used the low frequency/high frequency (LF/HF) ratio with values of LF/HF < 1.5 considered to reflect an increase in vagal modulation. We also calculated temporal parameters (rMSSD and pNN50) and deceleration capacity (DC). These parameters reflect vagal activity.

Results Mean age of the patients was 70.0 ± 10.7 (range 34–98), the number of episodes per patient was 2.0 ± 1.9 (range 1–11), and the CHA2DS2-VASc score was 2.9 ± 1.7 (range 1–9). VLF, LF, HF, rMSSD, pNN50 and DC increased significantlty before AF. The evolution of HFnu is illustrated in Fig. 1 (Table 1).

Conclusion A significant increase in vagal activity is the main cause of AF events. Taking this into account could be used to determine the method of the neuromodulation procedure.

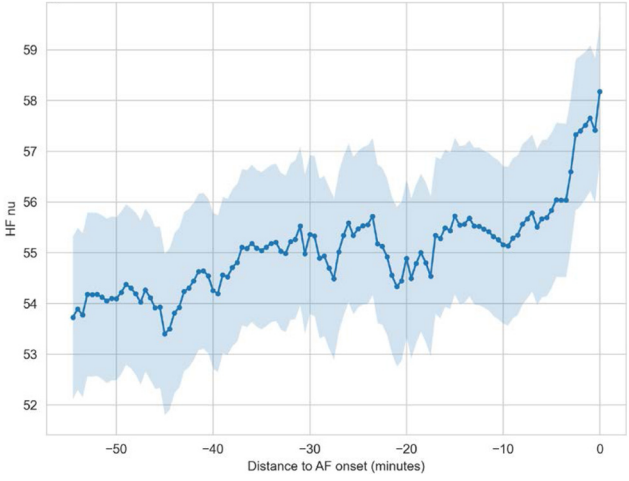

Fig. 1 Mean HF evolution in normalized units with 95% confidence intervals before AF onset.

Table 1 Evolution of the temporal values and DC for the two groups.

	Vagal	Vagal	Adrenergic	Adrenergic
Before AF	30 min	5 min	30 min	5 min
pNN50 (%)	24.38 ± 23	30.66 ± 24	10.64 ± 18	13.67 ± 18
rMMSD (ms)	154.46 ± 116	193.85 ± 123	73.82 ± 168	125.17 ± 238
DC (ms/s)	25.69 ± 26	31.49 ± 27	14.49 ± 21	20.54 ± 30

Values are expressed as ± standard deviation; all *P*-values < 0.05 for all results and were assessed by the Mann-Whitney test.

Disclosure of interest The authors declare that they have no competing interest.

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Diagnostic accuracy of a tertiary referral syncope unit: A long-term follow-up study

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Abstract
Introduction Syncope remains a frequent reason for medical consultation often undiagnosed. However, its management has significantly evolved in recent years through the establishment of "syncope units" (SU).
Objective The aim of our study is to evaluate the true diagnostic and therapeutic accuracy of a SU in a tertiary care centre by: 1/comparing the diagnosis obtained 1 year after the initial evaluation with the initial diagnosis made at the SU and 2/assessing syncope recurrence after 1 year.
Method This is a retrospective, single-centre analysis performed at our academic SU between December 2017 and December 2018. All consecutive patients evaluated in the SU were included. We recorded the diagnosis made at the SU. Patients were contacted by phone after 1 year to assess syncope recurrence and any new diagnosis performed.
Results A total of 247 patients (36.4% male) with a mean age of 53 ± 19 years were included. The initial diagnoses were: reflex syncope (66.4%), orthostatic hypotension (10.1%), neurological and psychiatric causes (10.1%), cardiac causes (4.4%) and syncope of undetermined etiology (9%). During a median follow-up of 18 months, 41.7% of patients had a recurrence and 17% of patients presented to the emergency department for a recurrence of syncope.
At the end of follow-up, the diagnosis was changed in 20.5% of patients (Fig. 1). The final diagnoses were reflex syncope (64.5%), orthostatic hypotension (6.9%), neurological and psychiatric causes (12.5%), cardiac causes (4.8%) and syncope of undetermined etiology (11.3%). No serious outcome was reported.
Conclusion Our study, based on long-term follow-up, shows that safety is the main benefit of syncope unit management, although diagnostic accuracy and therapeutic efficacy can be improved (20.5% change in diagnosis and 41.7% recurrence rate).

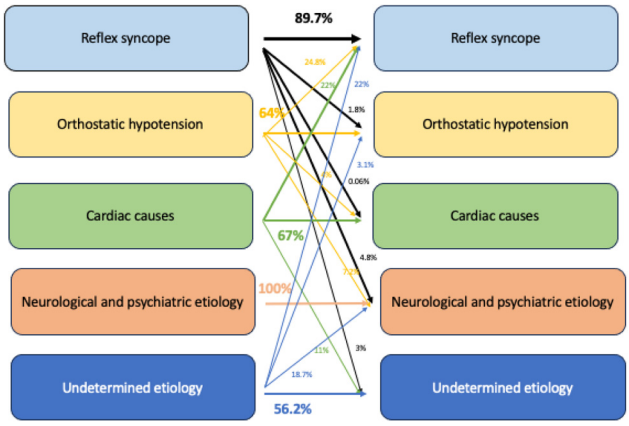

Fig. 1 Changed etiological diagnosis during follow-up.

Disclosure of interest The authors declare that they have no competing interest.

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Impact of ventricular tachycardia ablation after an electrical storm in patients at high risk for acute hemodynamic decompensation and mortality

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Abstract
Introduction Ventricular tachycardia (VT) ablation is a cornerstone for the management of electrical storm (ES). Yet, its impact in populations exhibiting high risk for per-procedural acute hemodynamic decompensation (AHD) and mortality remains poorly investigated. Two established scoring systems, PAINESD and iVT, evaluate these risks in individuals undergoing VT ablation.
Objective To investigate the impact of VT ablation on 1-month and 1-year mortality after ES among patients at high risk of AHD and mortality as defined by PAINESD and iVT scores.
Method In this retrospective study, 606 patients admitted for ES in four French centers were included. PAINESD and iVT score were used to characterize the risk for per-procedural AHD and death. Mortality at 30-days and 1-year after ES were assessed according to VT ablation and risk profiles.
Results 41% of patients were at high risk of AHD and mortality according to PAINESD and 39.4% according to iVT score. VT ablation rate was 42.4% in the overall population. 44.5%(PAINESD)/46.8% (iVT) of low-risk patients and 39.4% (PAINESD)/35.5% (iVT) of high-risk patients underwent VT ablation. Mortality at 30 days and 1 year was lower in patients undergoing VT ablation in the overall population. After accounting for confounding factors, VT ablation demonstrated a notable decrease in 30-day and 1-year mortality rates in high-risk patients, particularly exhibiting a greater protective effect among those classified as high risk according to the iVT score (1 month: OR 0.44 95%CI: 0.22; 0.85, *P* = 0.0166; 1 year: OR 0.31 95%CI: 0.18; 0.53, *P* < 0.0001).