Results: Ten months post PV ablation, both mean and max energies at high frequency band were significantly lower in all axes, while wavelet energies where also lower at mid range band in X and Y axes. No significant changes were noted at low band. Furthermore, P wave duration was shorter in all axes (X: 120.7±7.3 vs 113,5±7.2, p: 0.024, Y: 130.4±7.0 vs 109.5±5.3, p: 0.014, Z: 125.8±7.2 vs 109.2±6.1, p: 0.009, VM: 125.3±5.9 vs 115.6±7.5, p: 0.030).
Conclusion: P-wave wavelet analysis identifies spectrotemporal alterations in atrial excitation patterns, remaining several months after successful PV ablation.

P2882
Left atrial strain predicts the rate of recurrences in patients with paroxysmal atrial fibrillation and low CHA2DS2-VASc score undergoing pulmonary vein isolation

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Objectives: The aim of this study was to assess whether the baseline left atrial (LA) strain in patients with paroxysmal atrial fibrillation (PAF) and low CHA2DS2-VASc score undergoing pulmonary vein isolation (PVI) can reliably predict the positive outcome after the procedure, in order to be used as a selection criterion.
Background: There has been evidence that baseline LA strain assessed by speckle-tracking echocardiography may have a role in identifying patients who will maintain sinus rhythm after catheter ablation.
Methods: Thirty-nine patients (74% male), with CHA2DS2-VASc score<2 and absence of LA scar in bipolar atrial voltage mapping, who were treated with PVI for PAF were enrolled in the study. LA peak systolic strain (LAPs), LA reservoir strain rate (LARSr), LA conduit strain rate (LACSr), and LA contractile strain rate (LAASr) were measured 48 hours before the scheduled procedure.
Results: During a mean follow-up period of 286±107 days (median 360 days), 14 patients with a median of 1.5 (0–2) had AF recurrence accounting for 36% of the study population. Patients with no recurrence of AF were significantly younger [63.5 (57.5–68) vs. 54 (42–58), p=0.002] and had higher LAPS, LARSr and LACSr (29.9±6.8 vs. 23.7±5.6; p=0.006, 1.25±0.31 vs. 0.98±0.23; p=0.009, and 1.42±0.49 vs. 0.97±0.23; p<0.001, respectively). The optimal LAPs cut-off value to predict AF recurrence was ≤23.7 according to receiver operating characteristic (ROC) curve analysis (c-statistic: 0.794). Free from AF survival was significantly lower in patients with LAPs ≤23.7 (log-rank p=0.001). LAPs, LAASr and age were identified as independent predictors of AF recurrence.
Conclusion: LAPs and LAASr can reliably predict AF recurrence in patients with low CHA2DS2-VASc score.

P2883
Novel clinical evidence of autonomic dysfunction due to atrial fibrillation; with partial reversal after successful pulmonary vein isolation: implications for an early rhythm control strategy

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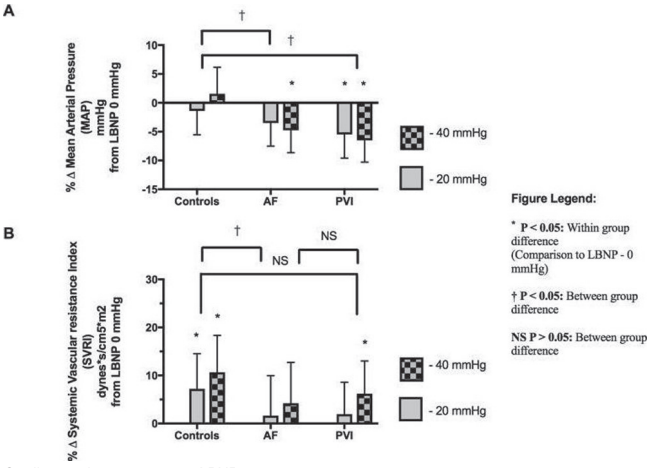
Introduction: Pulmonary veins, which contain atrial stretch receptors and an autonomic plexus, initiate and propagate Atrial Fibrillation (AF). Atrial stretch receptors are important in the reflex response to decreased venous return to the heart. While triggering of AF by the autonomic nervous system has received much attention the converse possibility that AF begets autonomic nervous system dysfunction has not been extensively studied in humans although animal studies suggest that such an effect is likely.
Purpose: We studied whether patients with symptomatic Paroxysmal AF (PAF) and those who had successful Pulmonary Vein Isolation (PVI), studied in sinus rhythm have abnormal reflex response to Lower Body Negative Pressure (LBNP) compared to healthy controls.
Methods: 20 PAF patients were compared to 14 age and sex matched controls. 14 patients who had successful PVI were also studied. Mean Arterial Pressure (MAP), Heart Rate (HR), Systemic Vascular Resistance (SVRI), Cardiac Index (CI) and Stroke Volume Index (SVI) were measured continuously and non-invasively using finger photo plethysmography during sham LBNP (–0 mmHg) and two levels of negative pressure; –20 mmHg & –40 mmHg. LBNP reduces venous return to the heart, deactivating cardiopulmonary receptors. This elicits reflex responses to maintain blood pressure by increasing both heart rate and systemic vascular resistance; the latter being the predominant effect.
Results: The mean age was 55 years in the control group (64% male) & 58 years in both the PAF group and PVI group (65% and 86% males, respectively). There were no patients with clinical heart failure or diabetes and all had normal left ventricular function. There was no difference in resting HR across the groups. In the PAF group, LBNP resulted in a reduction in MAP (–4.8%Δ; Figure panel A) owing to attenuated SVRI response (+4.2%Δ; Figure panel B) compared to controls (P<0.05). In the PVI group an SVRI increase approaching controls (+6.2%Δ; P=0.12), was insufficient to maintain MAP (–6.5%Δ). As expected, MAP was maintained in controls (97.4 to 98.9 mmHg; +1.6%Δ) owing to an increase in SVRI (+ 10.7%Δ). There was an equivalent increase in HR in all groups. CI and SVI decreased equally in all groups; confirming that equal LBNP stimulus was applied to all groups.



Cardiovascular responses to LBNP

Conclusion: The absent vasomotor response to LBNP seen in PAF patients compared to controls provides novel clinical evidence that in humans, AF causes autonomic dysfunction. Rhythm control with PVI results in partial recovery of autonomic dysfunction. This result reinforces experimental data in animal models of AF that have shown autonomic atrial remodelling. Therefore, not only does autonomic disturbance predispose to AF it might also result from AF, setting precedence for a possible positive feedback loop that could explain the well-known dictum of "AF begets AF".
Funding Acknowledgements: Cardiovascular Lipid Grant (awarded by the Australian Physicians Independent Committee & supported by Pfizer Pharmaceuticals) & Edwards Life Sciences

ATRIAL FIBRILLATION – EPIDEMIOLOGY PROGNOSIS OUTCOME

P2884
Clinical significance of postoperative atrial arrhythmias in patients who underwent lung transplantation

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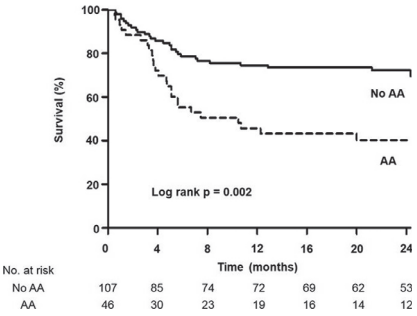
Background: Atrial arrhythmia (AA) occasionally occurs after lung transplantation (LT); however, risk factors for AA and their impact on clinical outcomes are inconsistent.
Purpose: We aimed to investigate the incidence, predisposing factors, and clinical outcomes of AA after LT.
Methods: We retrospectively evaluated 153 consecutive patients (age, 51.2±13.6 years; men, 58.8%) who underwent LT. Postoperative electrocardiographic (ECG) monitoring was performed in all patients. An AA episode was defined as documented atrial fibrillation (AF), atrial flutter (AFL), or atrial tachycardia (AT) on 12-lead ECG or episodes lasting ≥30 seconds on telemetry monitoring.
Results: The mean follow-up period was 15.3±17.8 months. Postoperative AA occurred in 46 of 153 (30.1%) patients, of whom 26 (17.0%) had AF, 11 (7.2%) had AFL, and 3 (2.0%) had AT. Patients with postoperative AA were older, had larger body surface area (BSA), and had more previous incidences of AF, idiopathic pulmonary fibrosis, and postoperative tracheostomy than patients without postoperative AA. History of AF (odds ratio [OR], 13.29; p=0.037), high BSA (OR, 13.69; p=0.032), and postoperative tracheostomy (OR, 6.90; p<0.001), which in-

Predictors for mortality after LT

Risk factors	Univariate analysis		Multivariate analysis	
	HR (95% CI)	p-value	HR (95% CI)	p-value
Age at transplant	1.02 (1.00–1.04)	0.071	1.01 (0.98–1.04)	0.551
Male	1.64 (0.93–2.89)	0.088	1.65 (0.81–3.35)	0.169
History of hypertension	1.93 (1.08–3.43)	0.026	1.81 (0.83–3.93)	0.134
History of AF	7.17 (0.78–65.81)	0.082	1.24 (0.36–3.94)	0.832
E/E' >15	3.01 (1.44–6.31)	0.003	3.33 (1.41–7.90)	0.006
Pre-operative PCPS	2.69 (1.51–4.81)	0.001	1.69 (0.55–5.27)	0.363
Pre-operative mechanical ventilation	2.98 (1.73–5.14)	<0.001	2.06 (0.79–5.35)	0.139
Postoperative tracheostomy	4.67 (2.39–9.07)	<0.001	2.56 (1.17–5.60)	0.018
Atrial arrhythmia after LT	2.49 (1.45–4.26)	0.001	1.97 (1.10–3.79)	0.031

AF: atrial fibrillation, CI: confidence interval, HR: hazard ratio, LT: lung transplantation, PCPS: percutaneous cardiopulmonary support.



dicated a longer period of mechanical ventilation, were found to be independent risk factors for AA after surgery. Development of AA after LT was a significant predictor of long-term overall mortality (hazard ratio, 1.97; p=0.031).
Conclusions: Patients with a history of AF, high BSA, and long-term ventilator care had a higher risk of AA after LT. Further, AA after LT was associated with poor long-term survival.

P2885
The CHA2DS2VASc score as a predictor of cardiovascular events in patients without atrial fibrillation

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Background: The CHA2DS2VASc score is used to evaluate the risk of thromboembolic events in patients with non-valvular atrial fibrillation (AF). However, little is known about its usefulness for prediction of cardiovascular (CV) events and mortality in subjects without AF.
Purpose: We aimed at evaluating and comparing the prognostic significance of the CHA2DS2VASc score for CV morbidity and mortality in populations with and without AF.
Methods: We analysed a population-based prospective cohort of 22,369 middle-aged individuals (mean age 63±7 years; men 39%). We grouped the population into five strata according to the CHA2DS2VASc score (adjusted for sex): CHA2DS2VASc=0, CHA2DS2VASc=1, CHA2DS2VASc=2, CHA2DS2VASc=3 and CHA2DS2VASc≥4, and compared the risk of major adverse cardiac and cerebrovascular events (MACCE) and mortality between subjects without prevalent or incident AF (n=18,637) and patients with history of AF (n=3,542).
Results: Over a median follow-up of 14±4 years, 1572 patients (6.9%) had an ischaemic stroke, 2162 (9.5%) a coronary event, and 5899 (26%) died. Cumulative incidences, absolute and relative risks of MACCE and mortality were greater with increasing sex-adjusted CHA2DS2VASc strata in subjects with and without AF. The cumulative incidence of ischemic stroke in patients without AF according to the CHA2DS2VASc score is shown in the Figure (left panel). The cumulative incidence of ischaemic stroke in CHA2DS2VASc≥4 subjects without AF was similar to that of patients with AF and CHA2DS2VASc=2, particularly during the first 10 years of follow-up (Figure, right panel), with a crude incidence rate of 0.91 (95% CI 0.68–1.19) and 1.12 (95% CI 0.92–1.36) ischaemic strokes per 100 patient-year, respectively. In multivariate Cox regression analysis, a CHA2DS2VASc≥2 was a significant predictor of all-cause death (HR 6.7; 95% CI 5.5–8.1), CV death (HR 10.2; 95% CI 7.0–14.9), ischaemic stroke (HR 7.8; 95% CI 5.8–10.5) and coronary events (HR 6.3; 95% CI 4.9–8.2), regardless of the AF status, age at the event, sex, use of antithrombotic drugs, dyslipidaemia and smoking status.

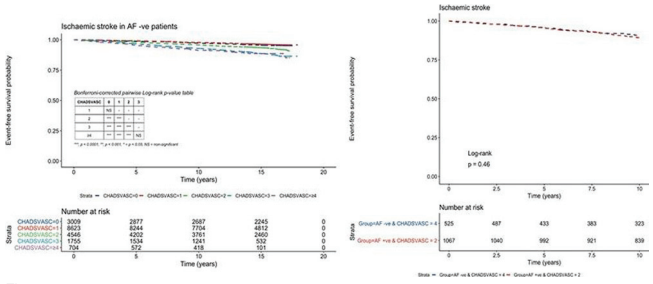

Figure 1

Conclusion: The CHA2DS2VASc score is a sensitive tool for prediction of MACCE in subjects both with and without prevalent or incident AF. The annual rate of ischaemic stroke in CHA2DS2VASc≥4 patients without AF was above 0.9%/year. Compared to its absence, the presence of AF is equivalent to two additional points in the CHA2DS2VASc score to predict MACCE.

P2886
Baseline stroke and bleeding risks in the global edoxaban treatment in routine clinical practice in patients with non-valvular atrial fibrillation programme (global ETNA-AF): first snapshot analysis

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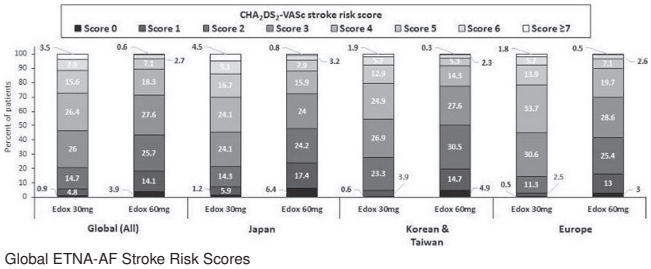
Background: Edoxaban has been approved for stroke prevention in patients with atrial fibrillation (AF) based on its effectiveness and superior safety compared to warfarin in the controlled ENGAGE AF-TIMI 48 trial. The ETNA-AF programme was initiated to evaluate the effectiveness and safety of edoxaban in patients under real-life conditions. Real-world evidence data is desirable – and mandated by regulatory bodies – to inform the use of edoxaban in AF patients in clinical practice, and to provide further safety and efficacy data.
Purpose and methods: The Global ETNA-AF Programme will provide real-world evidence on the use of edoxaban from 3 separate observational, prospective ETNA-AF registries currently being conducted in Europe, East Asia, and Japan. Data were harmonised, transformed, and integrated into a single database. A total of about 27,000 ETNA-AF patients will be included into the ETNA-AF registries and followed up for a minimum of 2 years. This baseline snapshot analysis in 17,769 (66%) patients of the target enrollment of about 27,000 patients used the CHADS2, CHA2DS2-VASc, and HAS-BLED scores as calculated on the basis of the risk factors captured in the case report forms to quantify the risks of stroke and bleeding. In a sub-analysis, the calculated CHA2DS2-VASc score was compared with the physician reported scores for Europe and Korea/Taiwan.
Results: Overall, 15,575 (87.7%) of patients had an intermediate/high risk of stroke (CHA2DS2-VASc ≥2) with a clear indication for anticoagulation; 12.3% were identified as having low stroke risk (CHA2DS2-VASc ≤1) and 453 patients (2.5%) did not have any stroke risk factors. CHA2DS2-VASc score (3.2±1.50) was lower than in the ENGAGE AF-TIMI 48 population in the same countries (4.2±1.35), and slightly higher in Japan (3.5±1.63) than in Europe (3.0±1.37) or Korea/Taiwan (3.0±1.41). The mean CHA2DS2-VASc score for Europe and Korea/Taiwan as calculated and as reported by the physicians are 3.3±1.5 and 3.0±1.4. The mean calculated HAS-BLED score overall in Global ETNA-AF was 2.4±1.12 (Europe: 2.5±1.12; Japan: 2.4±1.13; Korea/Taiwan: 2.3±1.07). In ENGAGE AF-TIMI 48 the mean HAS-BLED score (modified intention-to-treat population) for patients from the corresponding countries as ETNA-AF was 1.8±1.0.



Global ETNA-AF Stroke Risk Scores

Conclusion: Across all regions, in the Global ETNA-AF CHA2DS2-VASc scores ≤1 are more frequent in patients receiving the 60 mg edoxaban QD, whereas scores ≥2 are more often found in patients receiving edoxaban 30 mg QD. Compared with the scores calculated on the basis of reported risk factors, the physician-reported CHA2DS2-VASc score is slightly lower and HAS-BLED was slightly higher. The population in the Global ETNA-AF had a lower stroke risk than those recorded in the corresponding countries in the ENGAGE AF-TIMI 48 trial.
Funding Acknowledgements: The ETNA-AF Registry was sponsored by Daiichi Sankyo

P2887
Two-year outcomes of dabigatran etexilate treatment in patients with co-morbid heart failure and atrial fibrillation: the GLORIA-AF registry

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