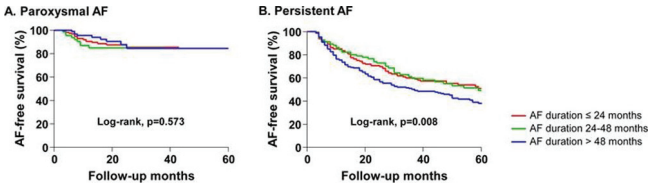
was clear. We compared clinical characteristics and rhythm outcomes based on AF duration less than 24 months (n=409), between 24 and 48 months (n=196), and longer than 48 months (n=400). We also evaluated whether there is difference between paroxysmal AF (PAF) and persistent AF (PeAF).
Results: 1. Baseline characteristics were comparable among 3 AF duration groups, except for the longer the AF duration, the higher the number of patients with hypertension (p=0.005) or PeAF (p<0.001). 2. During 24±22 months of follow-up, post-ablation clinical recurrence rate was higher in patients with longer pre-procedural AF duration (Log-rank p=0.003). 3. In subgroup analysis, AF clinical recurrence rate was significantly higher in patients with longer duration of PeAF (Log rank p=0.008), but there was no difference in those with PAF (Log-rank p=0.573). 4. In multivariate Cox regression analysis, AF duration longer than 48 months was significantly associated with higher clinical recurrence rate after catheter ablation in patients with PeAF (adjusted hazard ratio 1.059, 95% CI 1.006–1.115), but not in PAF group.



Kaplan-Meier analysis of AF recurrence

Conclusion: Although longer duration of AF was associated with higher clinical recurrence rate after catheter ablation, it was significant in patients with PeAF lasting over 48 months, but not in PAF patients.

P1904
Comparison of the efficacy of new-generation atrial antitachycardia pacing between patients with sick sinus syndrome and atrioventricular block

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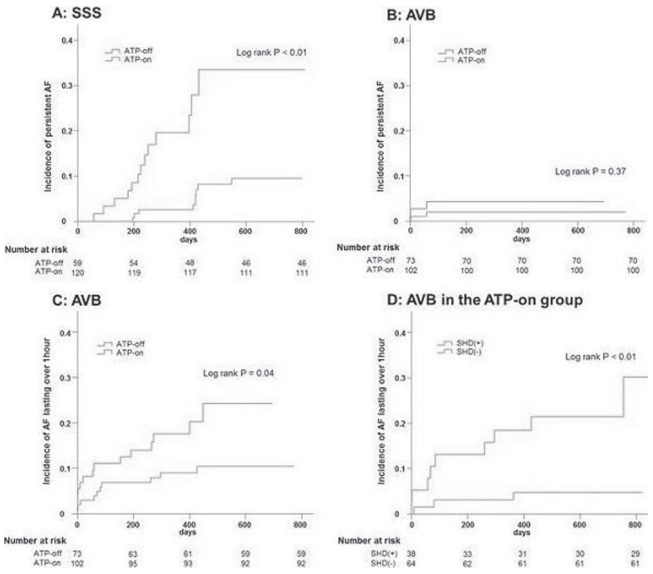
Background: New-generation atrial antitachycardia pacing (Reactive ATP) (aATP) has been shown to reduce the progression to persistent atrial fibrillation (AF) in patients with sick sinus syndrome (SSS). However, the efficacy of aATP in patients with atrioventricular block (AVB) remains unknown.
Purpose: The purpose of this study was to compare the efficacy of aATP between patients with SSS and AVB.
Methods: This study enrolled consecutive 222 patients with a dual-chamber pacemaker in whom aATP was programmed from 2015 to 2016 (ATP-on group, SSS:120, AVB:102), and 132 patients who were implanted with a dual-chamber pacemaker without aATP function during the same period (ATP-off group, SSS:59, AVB:73).
Results: During a follow-up of 15.2±5.3 months, a total of 5962 episodes were successfully terminated by aATP in 81 patients (SSS:64, AVB:17). The ATP efficacy rate was 40.3±30.8% and 38.0±30.0% in patients with SSS and AVB, respectively. The ATP efficacy rate was significantly higher in patients with a history of atrial flutter (AFL) than in those without AFL (AFL(+): 66.3±31.9%, AFL(–): 32.9±26.7%, P<0.01). The incidence of progression to persistent AF was significantly lower in the ATP-on group than in the ATP-off group in patients with SSS (log rank, P<0.01), but not in patients with AVB (Figure A, B). However, the incidence of paroxysmal AF lasting over 1 hour was significantly lower in the ATP-on group than that in the ATP-off group in patients with AVB (log rank, P=0.04) (Figure C). Especially in AVB patients in the ATP-on group, those without structural heart disease (SHD) showed a significantly lower incidence of paroxysmal AF lasting over 1 hour than in those with SHD (log rank, P<0.01) (Figure D).
Conclusions: Reactive ATP was less effective in patients with AVB than in those with SSS. However, Reactive ATP might contribute to the early termination of paroxysmal AF in patients with AVB, especially in those without structural heart disease.



Efficacy of reactive ATP in each group

P1905
Figure-of-eight stitch access site closure significantly reduces bleeding complications in patients undergoing cryoballoon ablation guided by intracardiac echocardiography

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Background: Cryoballoon ablation (CBA) has been proven safe and effective for both paroxysmal and persistent atrial fibrillation. Frequent complications include bleeding and hematoma at the site of access. A figure-of-eight-suture may reduce bleeding complications in particular when multiple large sheaths are used.
Purpose: We investigated whether a figure-of-eight-suture reduces bleeding complications in a large cohort of patients.
Methods: A total of 1131 CBAs performed at our center between 2013 and 2017 were retrospectively analysed. Right sided access size was 15 F for a steerable transseptal sheath. As intracardiac echocardiography was performed in all procedures, two additional left sided punctures with an 11 F sheath for the echocardiography probe and a 6F sheath to give access to a quadripolar phrenic nerve stimulation catheter were necessary. From 2017 on, we started using a suture for closure of both puncture sites at the operators' discretion.
Results: In 1131 procedures 351 (31.0%) patients received a figure-of-eight- suture, 342 (97.4%) on both sides, 8 (2.3%) only on the right and 1 (0.3%) only on the left side. Bleeding accounts for 5.7% of complications in our cohort and occurred in 9 patients with and in 55 cases without suture (p<0.01). Bleeding events were significantly more frequent in women (n=39 vs n=25, p<0.01) whereas number of sutures did not differ (p=0.38). As a consequence, suture did not significantly reduce bleeding events in female (p=0.27) but significantly in male patients (p<0.01).
Conclusions: A figure-of-eight stitch seems to significantly reduce bleeding complications after CBA procedures in a large cohort of patients. Unaffected by a suture, bleeding occurred more often in women. Therefore, figure-of-eight access site closure should be considered in patients undergoing CBA guided by intracardiac echocardiography to reduce bleeding complications.

P1906
Cryoballoon ablation of atrial fibrillation guided by high-resolution mapping: a multicentre study

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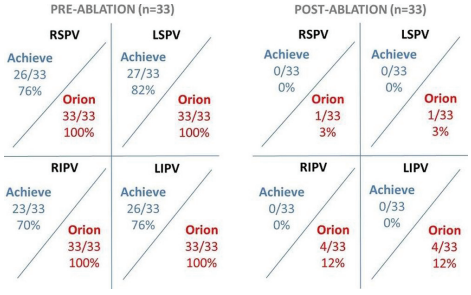
Background: No data are available on the use of high-resolution mapping (HRM) during cryoballoon ablation (CBA) for AF as the index procedure.
Aims: To assess the value of using a HRM system during CBA in terms of ability in acutely detecting incomplete CB lesions.
Methods: Patients with AF undergoing CB-PVI as the index procedure, assisted by a HRM system, were included.
Results: Thirty-three patients were included. At baseline, Achieve catheter revealed PV activity in 102 PVs (77%), while the Orion documented PV signals in all veins (100%). Failure of complete CB-PVI was more frequently revealed by HRM with Orion as compared to Achieve (24% vs 0%, p<0.05). Repeat CBA



PV real-time recordings

was performed in 8 patients (24%) with non-isolated veins identified by the Orion catheter. 29 patients (88%) remained free from AF during a mean follow-up of 14±4 months.

Clinical and procedural characteristics

Clinical characteristics	
Mean age (years)	59±18
Male, n (%)	25 (76%)
Paroxysmal AF, n (%)	28 (85%)
CHA2DS2-VASc score	1.8±1.6
LVEF (%)	60±4
LA diameter (mm)	37±2
Left common ostium, n (%)	5 (15%)
Right middle PV, n (%)	3 (9%)
Procedural characteristics	
Procedural time (min)	122±6
Fluoroscopy time (min)	18±2
Complications	0
High-resolution atrial mapping	
Mean number of EGMs	6985±1482
Mapping duration time (min)	13±4
CB ablation	
PV occlusion grade	3.8±0.3
Mean number of CB applications	5.7±1.9
CB ablation total time (min)	12.6±0.5

Conclusions: HRM after CBA improves the detection of areas of incomplete ablation, characterizes the extension of CBA and can identify abolishment of potential non-PVI related sources of AF.

P1907
Comparison of direct oral anticoagulants to uninterrupted warfarin for silent cerebral ischemic lesions and bleeding complications during atrial fibrillation ablation: a meta-analysis

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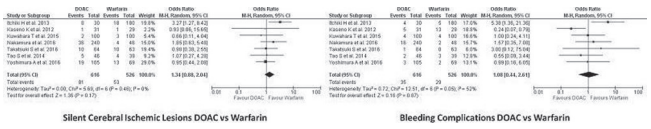
Introduction: Direct oral anticoagulants (DOAC) like dabigatran (D), rivaroxaban (R), apixaban (A) and edoxaban (E) are being used routinely pre and post-atrial fibrillation (AF) ablation. There are concerns that DOAC may be associated with more silent cerebral ischemic lesions (SCIL) than uninterrupted warfarin (UW). However, individual studies may be too small to accurately compare anticoagulation strategies given low procedural complication rates.
Methods: We conducted a meta-analysis of all published papers (n=6) and abstracts (n=1) in which a head MRI was performed within 24 hours of AF ablation to assess for SCILs. Complication rates were compared between patients treated with a DOAC and UW.
Results: The 616 pts on a DOAC (18% D, 41% R, 38% A, 3% E) were similar to the 526 pts on UW with respect to age, sex, AF type and stroke risk score. DOAC were either uninterrupted in 265 pts (43%) or held the morning of ablation. There were no clinical embolic events in either the DOAC or UW group. SCIL rates were similar in both groups (13.1% in DOAC vs 10.1% in W, OR 1.34, 95% CI 0.88–2.04; I2 = 0%;) Composite bleeding rates were also similar in both groups (5.7% in DOAC vs 5.5% in W, OR 1.08, 95% CI 0.44–2.61; I2 = 52%). See Figure.



Conclusions: This meta-analysis suggests that DOAC are an acceptable alternative to UW for anticoagulation during AF ablation. They do not have a significant increase in silent or clinical embolic events compared to UW and have similar bleeding complications. Additional studies are needed to assess the potential significance of holding the morning dose of the DOAC.

P1908
Catheter ablation of atrial fibrillation in very young adults

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Background: Most outcome data from atrial fibrillation (AF) ablation have been from middle age or elderly patients. Little is known about AF ablation outcomes in very young adults.
Purpose: To assess the outcomes of AF ablation in very young adults.
Methods: All 10378 AF ablation patients at our center (2000–2015) were enrolled in a prospectively maintained registry. Patients 18–25 year old were included. In addition to pulmonary vein isolation, testing / ablation of concomitant arrhythmias, accessory pathways or triggers was performed. Recurrences were defined according to guidelines.
Results: The study included 36 patients: 26 males, 10 females; 30 paroxysmal, 6 non-paroxysmal. Comorbidities: cardiomyopathy (n=6), valvular disease (n=4, 1 congenital). In addition to PV isolation, ablation targeted Superior Vena Cava SVC (n=16), Posterior wall (n=7), Roof (n=5), Septal and inferior to Right PVs (n=4), Coronary sinus CS (n=5), Left atrial appendage LAA (n=2) and Cavotricuspid Isthmus CTI (n=3). No accessory pathways were present in this group. Concomitant ablation included atrioventricular nodal reentrant tachycardia (n=2) and atrial tachycardia (n=2). Over 1 year of follow-up, 19 patients had arrhythmia recurrence (52.8%, 50% and 53.6% in those with or without structural heart disease). Recurrences were AF (n=12), AF/atrial flutter AFL (n=3), AFL (n=2) and atrial tachycardia (n=2). Repeat ablation was performed in 10 patients (5 with 1, 4 with 2, 1 with 3 repeat ablation). During redo procedures, PV reconnection was found in 9 of 10 patients and the veins were re-isolated: Additional ablation targeted SVC (n=2), Posterior wall (n=1), Roof (n=3), Septal and inferior to Right PV (n=2), CS (n=1), LAA (n=1) and CTI (n=1). At last follow-up, freedom from arrhythmia with one or multiple ablations was achieved in 29 patients (80.55%, 15 of them on antiarrhythmics).
Conclusion: The population of very young patients undergoing AF ablation represents a clinical challenge. While rhythm control was achieved in the vast majority, repeat ablation and continued antiarrhythmics were needed in many cases. The triggers and substrate for AF in this population may be different than older adults with the arrhythmia

P1909
The impact of ECG synchronization during acquisition of left atrium computed tomography model on radiation dose and arrhythmia recurrence rate after catheter ablation of atrial fibrillation

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Background: A fusion of electroanatomical (EA) map with a 3D computed tomography (CT) model of left atrium (LA) is routinely used to acquire anatomical details before atrial fibrillation (AF) catheter ablation (CA).
A widely-used gold standard for a CT procedure is not defined.
Objective: To evaluate the impact of ECG-gating on radiation dose, image quality and ablation outcome.
Methods: 62 patients scheduled for AF ablation were randomized 1:1 for two types of LA CT. Group 1: CT with retrospective ECG gating. Group 2: helical CT without ECG gating. A visual 5-point scale was used for CT image quality assessment. CT Dose Index (CTDIvol) and Dose Length Product (DLP) were used to compare radiation exposure. CA was done by a CT-type-blinded operator. A fast EA map (FAM, CARTO3) and merge with LA model (Carto3-Merge) were used. Variance between EA map and CT model were evaluated. All patients were put off antiarrhythmic drugs. Four seven-days Holter-ECG monitorings were evaluated for an arrhythmia recurrence during 12 months after ablation.
Results: We have found a significant difference between both groups in radiation dose - CTDI (89.55±5.99 vs. 19.19±4.33 mGy, $p<0.0001$), DLP (1438.87±147.75 vs. 328.21±73.83 mGy*cm, $p<0.0001$). There was no difference between the groups in visual data quality (1.77±0.88 vs. 2.0±0.63, p=0.102), average CT/FAM variance (2.42±0.72 vs. 2.43±0.46 mm, p=0.612), CA length (131.61±32.57 vs. 119.84±33.18 min, p=0.108), CA fluoroscopy time (4.48±2.19 vs. 3.89±1.83, p=0.251) and CA fluoroscopy length (4258.26±2964.94 vs. 4075.68±2845.85, p=0.741). There was no difference in body-mass-index (27.92±4.46 vs. 29.66±3.51, p=0.116). 12 months after ablation, 6/31 (80.65%) patients were free of AF in group 1 and 7/31 (77.42%) in group 2.
Conclusion: ECG-gating of computed tomography of left atrium before atrial fibrillation catheter ablation burdens patients with four times higher radiation dose without improving quality of left atrium CT model, quality of fusion of CT and electroanatomical map or catheter ablation parameters and with no impact on arrhythmia recurrence rate after ablation.

P1910
Clinical impact of early recurrence after initial catheter ablation for atrial fibrillation patients on hemodialysis: from Kansai Plus Atrial Fibrillation Registry

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Background and introduction: Early atrial fibrillation (AF) recurrence (within 90 days after a single ablation, ER) is reported to be a risk factor of late recurrence (>90 days after a single ablation, LR). Moreover, hemodialysis (HD) is reported to be a risk of LR. However, in HD patients, the relationship between ERs and LRs remains unclear.
Purpose: This study aimed to investigate the clinical impact of ERs for patients on HD.