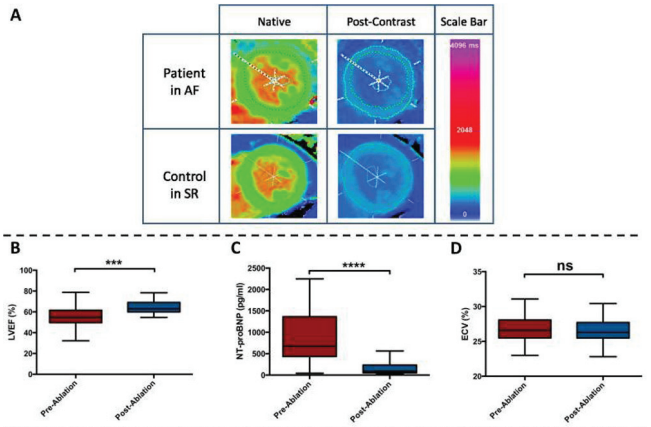

(A) Representative native (pre-contrast) and post-contrast T1 maps from a patient in AF and a control in SR. Lower panel shows paired pre-and post-ablation LVEF (B), NT-proBNP (C), and ECV (D) in sub-group of patients in AF during pre-ablation CMR and in SR during post-ablation CMR (n=18). Note significant improvement in LVEF and NT-pro-BNP (p=0.008 and p<0.001, respectively), but no change in ECV (p=ns).

Figure 1

function independent of fibrosis may be fully reversible with appropriate and targeted therapeutic strategies.

Acknowledgement/Funding: British Heart Foundation (RG/11/15/29375, RE/08/004)

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Critical role of non-pulmonary vein triggers in patients with atrial fibrillation referred after two or more failed catheter ablations

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Background: Atrial fibrillation (AF) begins as a pulmonary vein (PV)-trigger based arrhythmia, but maintenance of AF is mostly seen to be driven by ectopic triggers in the non-PV foci.

Objective: We report the procedural findings and ablation outcome in consecutive AF patients referred to our center after two or more ablation procedures

Methods: Three hundred five consecutive patients [paroxysmal AF 82 (27%)] referred to our institutions from January 2009 to August 2015, after ≥2 failed procedures at other centers, were included in this analysis. High-dose isoproterenol challenge was used to identify non-PV triggers. These were defined as ectopic triggers originating from sites such as interatrial septum (IAS), left atrial appendage (LAA), crista terminalis (CT), superior vena cava (SVC) and coronary sinus (CS). Both sustained (>30 seconds) as well as non-sustained triggers including repetitive short- lasting bursts of arrhythmia (<30 sec) or premature atrial contractions (PAC) (≥10 beats/minute) with earliest activation from non-PV sites were targeted for ablation. Patients were monitored for arrhythmia at quarterly office visits, ECGs, 7-day holter monitoring and event recorders. Any episode of AF/AFL/AT >30 sec occurring after the 90-days' blanking period were considered as recurrence.

Results: At the index procedure PV reconnection was observed in 226 (74%) of patients. After challenge with isoproterenol non-PV triggers were identified in 285 (93%). All patients with PV reconnection received repeat PV isolation (PVI) and ablation of posterior wall. The non-PV foci were mapped to CS (63.7%), LAA (57%), IAS (21.8%), CT (24.1%) and SVC (15.1%). These foci were ablated in 202 and not targeted in 83 patients, based on operator's discretion.

In the "non-PV ablation" group, the procedure time and fluoro time were significantly higher compared to the "no non-PV ablation" population (154.1±41.2 vs 137.1±38.2 min, p=0.002; 54.1±19.2 vs 45.4±20.5 min, p=0.001). After 4.2±1.3 year follow-up, patients undergoing non-PV ablation achieved 81% (164 of 202) success rate and those without had 8% success (7/83), p<0.001.

Conclusion: In patients experiencing AF recurrence after multiple failed PV isolation procedures, despite PV reconnection, non-PV triggers were found to be responsible for AF maintenance in the majority and ablating those triggers resulted in superior procedure outcome.

OPTIMISATION OF PRIMARY PCI

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Radial vs. Ulnar artery anomalies in STEMI patients: 6 year results from routine Wrist artery angiography

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Objective: To assess and compare the rates of wrist artery anomalies and their impact on the success of STEMI procedures in a large series of patients.

Methods: All consecutive 4303 STEMI patients, in the period from March 2011 until December 2016 were examined. Preprocedural wrist artery angiography was performed in all patients. Clinical and procedure characteristics, type of radial anatomy variants, transfer and procedure time were analyzed.

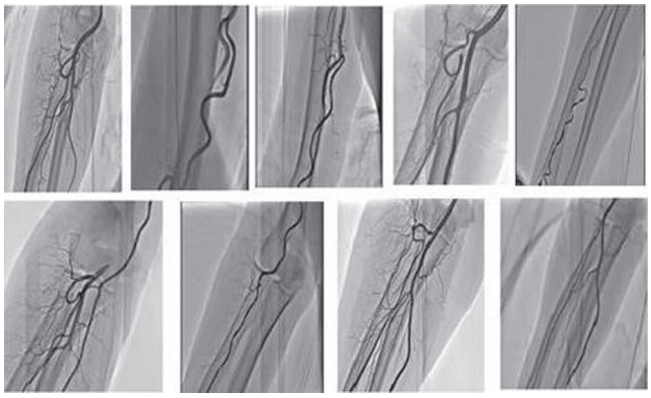
Results: From 4303 STEMI patients, RRA was done in 4169 (96%) patients, transulnar in 80 (1,7%) patients, LRA with 37 (0,8%), TFA in 8 (0,17%) and TBA in 9 (0,2%)patients. Anatomical variants of the RA and UA were present in 432 (10%) STEMI patients. 330 (7,6%) STEMI patients had Radial artery anomalies and 102 (2,4%) had Ulnar artery anomalies on wrist angiography.

The most frequent variant in both groups was high-bifurcating radial and ulnar artery origin from the axillary and brachial arteries in 304 (7,1%) patients, with 230 (5,3%) and 74 (1,8%) respectively. From RA anomalies 43 (1,0%) patients had a full radial loop and 57 (1,3%) had extreme radial artery tortuosity. None of the patients had UA loop and UA tortuosities were present in 0,6% (28) patients. Highest incidence of of cross-over was present in patients with complex radial artery loop 16/43 (37%). No UA anomaly in the 80 patients with TUA required access site crossover to another approach. TUA had more punctures with 7% of patients with multiple punctures compared with TRA with only 1%.

Radial vs. Ulnar anomalies in STEMI

STEMI (n=4303)	RRA	UA	P value
ACCESS	4169 (96%)	80 (1,7%)	P<0,001
Anomalies	330 (7,6%)	102 (2,4%)	P<0,001
High bifurcation origin BA/AA	230 (5,3%)	74 (1,8%)	P<0,001
Complex loop	43 (1,0%)	0 (0%)	P<0,001
Extreme tortuosity	57 (1,3%)	28 (0,6%)	P<0,001
Crossover due to anomalies	22/330 (6,6%)	0 (0%)	P<0,001
Multiple punctures >3	42/4169 (1%)	6/80 (7,5%)	P<0,001

RRA, right radial artery; UA, ulnar artery; BA, brachial artery; AA, axillary artery.



Anomalies

Conclusion: The ulnar artery has a significantly smaller percentage of anomalies than the radial artery with a low percentage of access crossover in STEMI patients. Pre-procedural wrist artery angiography in STEMI patients gives the operator an opportunity to successfully plan the strategy for crossing the anomaly or transfer to a new approach in the interest of saving time and reducing door to baloon time.

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Use of drug eluting stents compared to bare metal stents in ST segment elevation myocardial infarction is associated with reduced mortality and cardiovascular outcomes: results from the TOTAL trial

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Background: The safety and efficacy of drug eluting stents (DES) in the setting of ST elevation myocardial infarction (STEMI) remains controversial.

Purpose: To compare the outcomes of STEMI patients receiving DES to those receiving a bare metal stent (BMS) during primary PCI.

Methods: In the TOTAL trial, patients presenting with STEMI were randomized to routine thrombectomy versus PCI alone. Propensity matching was used to assess relative safety and efficacy according to type of stent used.

Results: DES were used in 4333 patients and BMS in 5090 patients. The composite primary outcome of cardiovascular death, recurrent MI, cardiogenic shock