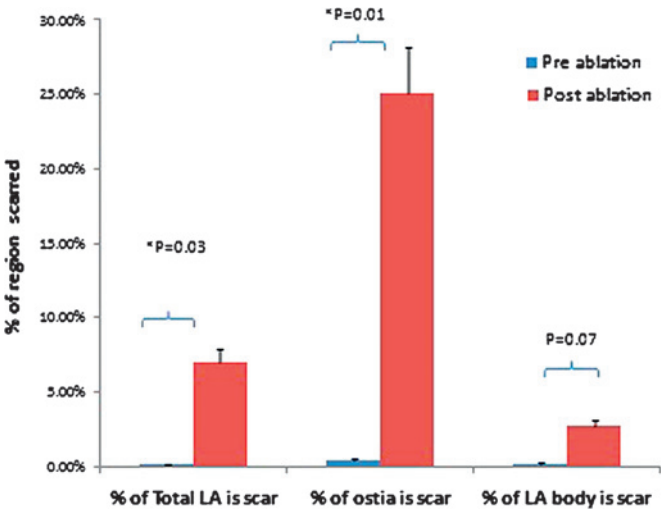
profile was reported in only 37%. Only 47% (n=78) of records described a witness account. Within the witness accounts that were recorded, key elements remained un-reported for example skin complexion was only reported in 35% of the 78. The duration of the TLOC was recorded in only 44%, Tongue biting in 27% and the presence or absence of abnormal movements was recorded in only 12% of this 78 patients. The presence or absence of a family history of sudden cardiac death was only reported in 2% cases. The family history of a cardiomyopathy was only recorded in 1% and a family history of TLOC was recorded in 1%. A patient past history of cardiac disease was asked about in 40% of cases while a past history of TLOC was only asked about in 35%. In this majority elderly study population, a recent change in drug therapy was only asked about in 2% of cases. This study highlights that in a DGH environment, the initial assessment of patients with TLOC is undertaken by junior medical staff who often do not document key diagnostically differentiating elements of the history and examination indicating an ongoing lack of adequate training regarding the most appropriate and accurate techniques for differentiating the causes of TLOC.



Abstract 149 Figure 1 Comparison of pre-ablation and post-ablation % scar using fixed threshold.

149 AUTOMATED ANALYSIS OF ATRIAL ABLATION-SCAR USING DELAYED-ENHANCED CARDIAC MRI

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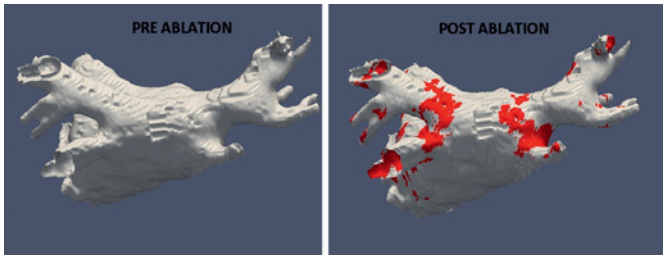
Introduction Visualisation of the ablation-related atrial scar using delayed-enhanced MRI (DE-MRI) may reveal important underlying causes for atrial fibrillation (AF) recurrence following ablation. In order to develop and objective method for delineating ablation-scar we compared pre and post DE-MRI after Cryo-balloon lesion on the basis that a more predictable lesion set would be created for validation.

Methods and Results 12 patients undergoing cryoablation for PAF were enrolled in the study, and underwent pre-ablation DE-MRI scans. Pulmonary vein isolation (PVI) was confirmed in all patients at the end of the cryoablation procedure using a circular mapping catheter. Additional ablation by RF or Freezer Max was required to achieve PVI in 59%. No ablation was performed in any region other than the PV ostia. Post-ablation DE-MRI was performed at 3 months. An automatic segmentation of the LA was produced with custom software from the MRA sequence. The preablation and postablation free breathing late gadolinium enhanced sequence was registered to the MRA and the maximum intensity within the LA wall was projected onto the post ablation LA surface. The blood pool was identified automatically using custom software as the region 1 cm inside the wall of the LA, and its mean (BPM) and SD used as a baseline. To identify a universal threshold for scar, regions of brightest myocardium were initially selected in pre and post ablation MRIs. The brightest regions were 1.9±1.2 vs 8.7±3.1 SDs above the BPM in pre-and post-ablation MRIs respectively (p=0.001). A threshold of 5 SDs above the BPM was therefore programmed into our custom software to identify regions of scar for all patients. The ostial regions were defined as extending 1 cm both proximal and distal to the PV–LA junction, and selected manually for left and right sided veins prior to scar projection. (See Abstract 149 figure 1). The scar proportion within these regions was calculated using commercially available software ITK-SNAP. Total LA scar proportion was 0.2±0.02% vs 6.3±0.75% in pre and post ablation scans respectively. The increase in scar seen in the PV ostia was 24.6±1.38% compared with 2.6±1.28% in the rest of the LA (p=0.01) (See Abstract 149 figure 2).



Abstract 149 Figure 2

Conclusion We have demonstrated the feasibility an objective, automated method of DE-MRI analysis of left atrial ablation-scar. This technique will now need to be validated against clinical outcomes.

150 IMPLANTABLE CARDIOVERTER-DEFIBRILLATOR LEAD COMPLICATIONS AND CLINICAL EFFECTIVENESS IN PATIENTS WITH INHERITED CARDIAC CONDITIONS

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Background Implantable cardioverter-defibrillator (ICD) therapy can reduce sudden death due to ventricular arrhythmia (VT/VF) but is not without complication, particularly in young patients who live for many years with a device in situ. We aimed to determine the ICD complication rate in our inherited cardiac condition (ICC) population compared with international reports. Particular importance was given to inappropriate shock therapy due to lead failure as there are new ICD technologies available.

Methods Patients with ICCs who had ICD implantation or box change between January 2006 and September 2009 were included. Data on clinical characteristics, complications and ICD therapies were obtained from pacing and hospital records. We compared our data with several ICD studies of patients with specific ICCs (Abstract 150 table 1).

Abstract 150 Table 1

	SGH ICC patients (n=101)	Long QT Syndrome patients (n=51)	HCM patients (n=506)	ARVC patients (n=106)	Brugada Syndrome patients (n=220)
Follow-up (months; mean±SD)	74±53	87	44±33	58±35	38±27
Appropriate therapy (%)	26	24	20	24	8
Inappropriate therapy (%)	18	29	27	19	20
Lead failure (%)	21	25	7	2	9
Complication rate excluding lead failure (%)	26	31	n/a	34	20

Results 101 patients (mean age 44.1±14.8 years; 59 male) were included (idiopathic VF 15%; DCM 17%; ARVC 22%; HCM 21%; long QT syndrome 17%; Brugada syndrome 6%; others 2%). During a mean follow-up of 74.0±53.2 months 2 patients died (1 inappropriate shocks; 1 stroke). Indications were secondary prevention in 71.3% of patients. ICD types were 56.4% single chamber; 39.6% dual chamber; 4.0% biventricular. Appropriate therapy successfully terminated VT/VF in 27 (26.7%) patients 34.7% of secondary and 6.9% of primary prevention patients received appropriate therapy. Inappropriate therapy occurred in 18 (17.8%) patients and lead failure (noise/wear/fracture) in 22 (20.8%) patients (Abstract 150 table 2). 12 out of 18 inappropriate shocks were due to lead failure, 5 sensing errors (1 T-wave oversensing; 4 AF), 1 generator fault. 10/22 leads that failed were Medtronic Sprint Fidelis and these were responsible for 8/12 patients receiving inappropriate shocks including one death due to lead fracture. Comparison with other studies indicates a high lead failure rate due to the long follow-up period, similar to the LQT Study which reports 25% lead failure over 87 months (Abstract 150 table 1). With lead failure excluded the complication rate is comparable to shorter follow-up studies. Inappropriate and appropriate therapy rates are similar among all studies.

Abstract 150 Table 2

Complication	Number of patients	% of patients
Lead failure	21	20.8
Inappropriate shock	18	17.8
Lead displacement	5	4.9
Infection	5	4.9
Pneumothorax/Haemothorax	5	4.9
Box/Wound/Other revision procedure	7	6.9
Thrombosis (venous/lead)	2	1.9
Haematoma	5	4.9
Chronic abdominal cavity post-explant	1	0.9

Conclusions There is a significant rate of ICD lead failure in patients with ICCs, which may be expected given the high frequency of Sprint Fidelis leads implanted during this period and the long follow-up. Our results compare favourably to other similar studies. The high rate of appropriate therapy highlights the clinical effectiveness of ICD intervention in secondary prevention. Lead complications may be lower with the use of new ICD technology in selected patients.

151 RISK OF RECURRENCE FOLLOWING EXTRACTION OF CARDIAC IMPLANTABLE ELECTRONIC DEVICES FOR INFECTION: WHEN SHOULD A NEW DEVICE BE RE-IMPLANTED?

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Background The recommended management of cardiac implantable electronic device (CIED) infection is complete system extraction. There are limited clinical data on the optimal time for device re-implantation. A small series reported good results with simultaneous contralateral implantation. We evaluated this approach in our institution for patients without signs of systemic sepsis. We present clinical outcomes and completeness of extraction.
Methods The clinical records of all patients undergoing lead extraction in our institution since January 2008 were reviewed.
Results 68 patients underwent CIED extraction for infection during this time period (see Abstract 151 table 1). In 34 cases, the device was removed with simple traction, 9 with locking stylet, 22 with locking stylet and laser sheath, 1 with locking stylet and mechanical sheath and 2 with femoral snare. There was complete hardware removal in 64 cases (94%). One patient with lead related endocarditis required a subsequent surgical procedure to remove a lead fragment and in 4 other patients who had erosion, pocket infection or threatened erosion, a small fragment of lead remained. 18/68 patients were re-implanted with a new device on the contralateral side on the same day as the extraction. 28/68 patients received a new device between 1 and 227 days later and 22/68 have not undergone reimplantation. An active fixation bipolar TPW (temporary pacing wire) was used in 6 patients for a mean 7.8±2.7 days. 3 patients had a further device related procedure during a mean follow-up of 445±304 days: 1 lead reposition, 1 pocket washout and 1 extraction. Of the 2 procedures carried out for recurrent infection, 1 was managed with a TPW for 7 days prior to reimplantation and 1 underwent reimplantation at 14 days without TPW. In addition, the patient requiring pocket washout had a fragment of lead remaining following their initial extraction.

Abstract 151 Table 1

Indication for device extraction	Number of patients, n=80 (%)
Erosion	31 (39)
Pocket infection	25 (31)
Lead infection	7 (9)
Threatened erosion	4 (5)
Pain	1 (1)

Conclusion We report low rates of recurrent infections following CIED extraction. None of the 18 individuals simultaneously re-implanted with a new device on the contralateral side needed any further procedures during the follow-up period. This approach may be appropriate, particularly in pacing dependant patients who would otherwise require a TPW with its associated risks. In those individuals who required a TPW, the risk of recurrent infection in our series was 17% despite our use of an active fixation pacing lead and externalised pulse generator which has a lower reported complication rate. Only one of the 4 patients with a residual lead fragment required re-intervention for recurrent infection. This provides some supportive evidence that in patients with high surgical risk and pocket abnormalities, if fragments of lead may remain, the patient may be treated conservatively and monitored for signs of recurrent CIED infection.

152 REAL-TIME CARDIAC MR ANATOMY AND DYSSYNCHRONY OVERLAY TO GUIDE LEFT VENTRICULAR LEAD PLACEMENT IN CRT

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Introduction Optimal left ventricular (LV) lead placement via the coronary sinus (CS) is a critical factor in defining response to cardiac resynchronisation therapy (CRT). Using novel semi-automated image acquisition, segmentation, overlay and registration software