

stratification of individuals with pre-excitation. In addition, accessory pathway ablation did not eliminate the risk of SCD possibly due to multiple pathways. Finally, pre-excitation was associated with additional structural abnormalities in almost 50% of cases, underscoring the necessity of performing baseline echocardiography in all individuals and suggesting that the combination of pre-excitation with additional cardiac pathology may render individuals at higher risk of SCD.

67 OBESITY AND SUDDEN DEATH. PATHOLOGICAL INSIGHTS FROM A LARGE PATHOLOGY REGISTRY

¹Gherardo Finocchiaro*, ²Michael Papadakis, ²Harshil Dhutia, ¹Ahmed Merghani, ¹Stathis Papatheodorou, ²Elijah Behr, ²Sanjay Sharma, ¹Mary Sheppard. ¹St George's University of London Hospital; ²St George's University Hospital; *Presenting Author

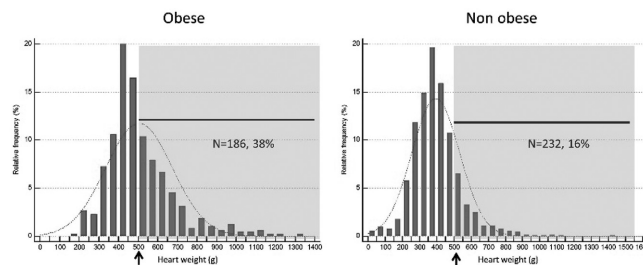
10.1136/heartjnl-2016-309890.67

Aims Obesity is a rising public health problem and widely known risk factor for cardiovascular diseases. The relationship between obesity and sudden cardiac death (SCD) is unclear and based on small cohort studies. The aim of the study was to determine the main features and aetiologies in a large cohort of SCD occurred in obese subjects

Methods Between 1994 and 2014, 3684 consecutive cases of SCD were referred to our cardiac pathology centre. In 1954 body mass index (BMI) data were available; obesity was defined by a BMI ≥ 30 . All subjects underwent macroscopic and microscopic post-mortem evaluation by an expert cardiac pathologist. Clinical information were obtained from the referring coroners.

Results Four hundred ninety-one patients (25%) were obese. The average heart weight (HW) in obese patients was 505 ± 170 g and 186 (38%) had a HW of more than 500 g. Obese patients were older at death (39 ± 14 vs 35 ± 16 years in non-obese, $p < 0.001$). In obese SCD victims the most common post-mortem findings were: normal heart (sudden arrhythmic death syndrome, SADS) ($n = 192$, 39%), followed by idiopathic left ventricular hypertrophy (ILVH) ($n = 88$, 18%) and critical coronary artery disease (CAD) ($n = 57$, 12%). Less frequently observed were hypertrophic cardiomyopathy (HCM) ($n = 24$, 4%) and arrhythmogenic right ventricular cardiomyopathy (ARVC) ($n = 22$, 4%). When compared with non-obese SCD victims, SADS was less common (39 vs 51% , $p < 0.001$) while ILVH and critical CAD were more frequent (18 vs 3% , $p < 0.001$ and 12 vs 6% , $p < 0.001$ respectively). In young patients (<35 years old) the prevalence of critical and non-critical CAD was significantly higher in obese subjects (23 vs 10% in non-obese, $p < 0.001$).

Conclusions Various conditions underlie SCD in obese patients, with a prevalence of SADS, ILVH and CAD. The degree of hypertrophy measured by heart weight appears in excess even after correction for body size, postulating its possible pathogenetic role in the development of fatal arrhythmias. Almost one in four young obese sudden death victims shows some degree of CAD, underscoring the need for primary prevention in this particular subgroup.



Abstract 67 Figure 1

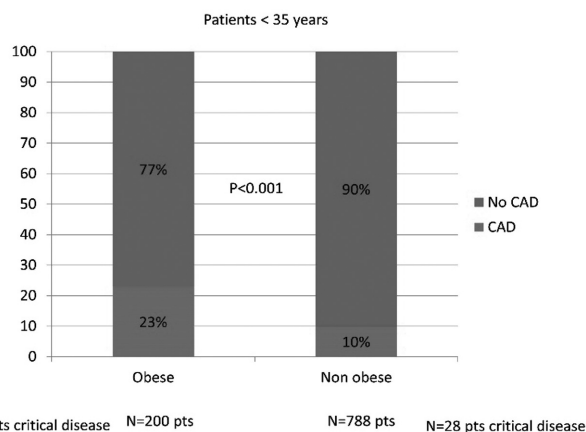
68 RIPPLE MAPPING THE VENTRICULAR SCAR: A NOVEL APPROACH TO SUBSTRATE ABLATION OF POST-INFARCT VENTRICULAR TACHYCARDIA TO PREVENT IMPLANTABLE DEFIBRILLATOR THERAPY

¹Vishal Luther*, ²Nicholas W Linton, ²Shahnaz Jamil-Copley, ²Michael Koa-Wing, ²Norman Qureshi, ²FuSiong Ng, ²Phang Boon Lim, ²Zachary Whinnett, ²David Wyn Davies, ²Nicholas S Peters, ²Prapa Kanagaratnam. ¹North West Thames Deanery; ²Imperial College Healthcare NHS Trust; *Presenting Author

10.1136/heartjnl-2016-309890.68

Introduction Ventricular Tachycardia (VT) is a common cause of mortality post myocardial infarction. Any mortality benefit of an implantable cardiac defibrillator (ICD) may be offset by the significant morbidity caused by VT shocks from the device. The VT circuit is dependent upon channels of surviving myocardium within the infarct substrate. As VT is often poorly tolerated, ablation of characteristic electrograms (fractionated and late potentials) associated with these channels in sinus rhythm is preferred to reduce ICD therapies, though recurrence rates remain high. Ripple Mapping (RM) displays all electrogram components from each anatomical point as a dynamic bar that protrudes from its 3D location. We have described how RM might visualize "conducting channels" (RM-CCs) of these characteristic electrograms within the infarcted substrate in a retrospective series. In this study, we used RM prospectively (CARTO3v4™) to characterize the VT substrate to guide ablation.

Methods Consecutive pts referred for VT ablation following episodes of sustained VT or ICD therapies post distant MI were included. High point density bipolar LV endocardial electrograms were collected in sinus rhythm or ventricular pacing within the infarct "scar" (<1.5 mV) and reviewed for RMCC identification. Ablation targeted all RMCCs and isolated clusters of late activation considered an endocardial portion of an



Abstract 67 Figure 2

intramural/epicardial RMCC. Programmed ventricular stimulation assessed VT inducibility post procedure as a marker of immediate efficacy and device interrogations were conducted at 1, 3, 6, and 12 months to determine time to VT recurrence.

Results 15 consecutive pts (median age 68yrs, LVEF 30%) were studied (6 month pre-procedural ICD therapies: median 19 ATP events (IQR=4–93) and 1 shock (IQR=0–3)). Scar (<1.5mV) occupied a median 29% of the total surface area (median 523 scar points). A median of 2 RMCCs were seen within each scar (length 60mm; far field peak amplitude 0.43mV; local 0.19mV; conduction 53cm/s). The Figure illustrates two RMCCs enhanced with design lines within a large anterior scar containing distinct late potentials ascending up the scar. This is readily apparent without manual annotation or point tagging. Ablation was performed along all RMCCs (median 19 lesions (IQR=10–23)) and any non-connected sites (median 6 lesions (IQR=2–12)). The diastolic isthmus in VT was mapped in 3 pts and co-located within the RMCCs identified. VT was non-inducible in 85% of patients post ablation. There were no complications during the procedures. In this cohort, 71% remain free of VT recurrence at 6 month median follow up. Interestingly, during redo ablation in a patient with recurrence, an RMCC identified during the index procedure had not been completely eliminated.

Conclusions RM identifies conducting channels within the post-infarct scar that might support re-entrant VT and can be used to guide substrate based ablation to reduce future ICD therapies.

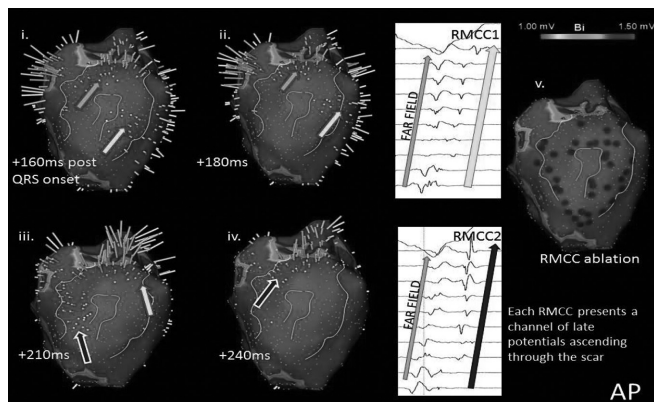
69

A PHYSIOLOGIST LED LOOP RECORDER IMPLANTATION SERVICE IN AN AMBULATORY SETTING

¹Shabanna Din*, ¹Sandra Belchambers, ¹Susan Hughes, ²Jay Wright. ¹LHCH; ²LHVH; *Presenting Author

10.1136/heartjnl-2016-309890.69

Our tertiary cardiac centre has developed a new ambulatory service for injectable loop recorder insertion based in a treatment room. Previously loop recorders were implanted in a dedicated pacing theatre by a consultant led team. The patient was kept nil by mouth prior to the procedure and were dressed in a theatre gown. The wound from the device was around 4 cm and was closed with sutures. The typical time in



Abstract 68 Figure 1 The path of RMCC activation at 4 time points (i-iv) within scar, with associated electrograms and ablation lesions (v)

theatre was around 30 min. Patients were then observed for 2 h post procedure prior to discharge.

A new injectable reveal device became available with reduced surgical trauma and scarring. We subsequently developed a new service run by senior cardiac physiologists without the need for medical staff to be present. The physiologists were initially trained in obtaining consent, surgical skills and device implantation. They were then supervised for the first 20 implants before continuing independently. We looked retrospectively at the first 100 cases. The service was run from a treatment room on a day ward and was entirely ambulatory. Oral antibiotics and local anaesthetic were prescribed by a doctor prior to the implant. The average case time was less than 10 min. Patients did not require fasting and were able to have the implant done in their own clothes. The wound is less than one cm and is closed with a surgical glue without the need for sutures. The patients were educated on use of the device and then discharged post procedure. The waiting time for the physiologist led service is significantly reduced with cases generally being done in under 2 weeks. Previously the waiting time for a consultant to implant a loop recorder was around 2 months. The adverse event rate is favourable with no implant site infections and 2 erosions. There have been no major adverse effects. The new service had freed up a considerable amount of theatre space and consultant time allowing a more efficient pacing service. The patient experience has been improved with a shorter time in hospital. The new device is more expensive than the previous loop recorder but the cost has been offset by the reduced staffing requirements and need for less equipment. We have demonstrated that implanting by non medical staff is safe, efficient and cost effective.

70

A NOVEL AMBULATORY SYNCOPE ASSESSMENT UNIT IS SAFE AND COST-EFFECTIVE IN A LOW-RISK PATIENT COHORT

¹Hamish Mclachlan, ¹Christopher Allen, ¹Myura Nagendran, ²Gothandaraman Balaji*. ¹RBH; ²Northwick Park Hospital; *Presenting Author

10.1136/heartjnl-2016-309890.70

Introduction Syncope affects approximately 50% of people in their lifetime. The diagnosis of the underlying cause for syncope is often delayed, inaccurate and cost-inefficient.¹ The objective of this study was to evaluate the safety and cost-effectiveness of a novel low-risk syncope day-case assessment unit recently introduced at a DGH.

Methods A retrospective analysis of 50 in-patients admitted with syncope was initially undertaken. Measured variables included length of in-patient admission, waiting time to investigation (24-hour holter and transthoracic echocardiogram), frequency of cardiology review, 30-day re-admission rate with syncope and 90-day mortality rate. The same variables were then assessed prospectively in 50 in-patients referred directly to the syncope clinic. The one-stop assessment unit took place in the local ambulatory care unit (Figure 1) and was led by acute medical physicians; with access to transthoracic echocardiography and continuous ECG monitoring which were all performed on the same day. Patients were referred for same-day specialist review as appropriate. All 100 patients were deemed low risk as defined by the San-Francisco Syncope Rule.³ Patients investigated for conditions other than syncope