PILOT STUDY EXPLORING THE REGIONAL REPOLARISATION INSTABILITY INDEX IN RELATION TO MYOCARDIAL HETEROGENEITY AND PREDICTION OF VENTRICULAR ARRHYTHMIA AND DEATH

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Introduction There is a need for better sudden cardiac death (SCD) risk markers. Mounting evidence suggests that the mechanism underlying risk of ventricular arrhythmia (VA) is increased heterogeneity of electrical restitution. We investigated a novel measure of action potential duration (APD) restitution heterogeneity: the Regional Repolarisation Instability Index (R212) and correlated it with peri-infarct zone (PIZ) a cardiac magnetic resonance (CMR) anatomic marker of VA risk.

Methods Blinded retrospective study of 30 patients with ischaemic cardiomyopathy assessed for an implantable cardioverter defibrillator. The R212 was derived from high resolution 12 lead ECG surrogates were used to plot APD as a function of diastolic interval; the R212 was the maximal value of the mean squared residuals of the mean points for anterior, inferior and lateral leads normalised to the mean value for the total population. PIZ was measured from late gadolinium enhanced CMR images using the full width half maximum technique.

Results Seven patients reached the endpoint of VA/death (median follow-up 24 months). R212 > median was found to be predictive of VA/death independent of PES result, left ventricular ejection fraction and QRS duration (6/14 vs 1/15 p=0.031). Modest correlation was seen between the R212 and PIZ (r=0.41 p=0.057) (Abstract 159 figure 1).

Conclusions In this pilot study of ischaemic cardiomyopathy patients, the R212 was shown to be an electrical measure of VA/ death risk with a moderately strong correlation with an anatomic measure of arrhythmic substrate, the extent of PIZ. The R212 may add value to existing markers of VA/death and merits further investigation.

Abstract 159 Figure 1

160 HIGH DOSE OCTREOTIDE; A NOVEL THERAPY FOR THE TREATMENT OF DRUG REFRACTORY POSTURAL ORTHOSTATIC TACHYCARDIA SYNDROME IN PATIENTS WITH JOINT HYPERMOBILITY SYNDROME

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Introduction Postural orthostatic tachycardia syndrome (POTS) is defined as symptomatic orthostatic intolerance with an increase in heart rate of 30 beats per minute within 10 min of head up tilt (HUT). This dysautonomia causes wide-ranging symptoms including palpitations, presyncope, chronic fatigue, headache and cognitive difficulties. When POTS occurs in patients with pre-existing Joint Hypermobility Syndrome (JHS), symptoms begin approximately a decade earlier than non-JHS patients with a preponderance of neurological features, secondary to cerebral hypoperfusion. Vascular laxity with splanchic venous pooling has been implicated as a causative factor thus measures to expand plasma volume (thereby increasing mean arterial pressure and restoring cerebral perfusion) form the mainstay of therapy. Symptomatic improvements have been previously reported in POTS patients with the somatostatin analogue Octreotide, a powerful splanchic vasoconstrictor. We report the first UK series of JHS patients with drug refractory POTS treated with high-dose octreotide.

Methods Six patients (female, aged 21–52) were referred to our institution. All had known JHS (4 requiring a wheelchair), neurological symptoms (headache and cognitive impairment) and diagnostic tilt-table testing with a mean increase in heart rate of 64 beats/min (range 47–73) with head up tilt (HUT). All patients had remained symptomatic despite pre-treatment with a mean of 5 POTS medications (range 5–7) including fludrocortisone, midodrine, propranolol, ivabradine, selective serotonin reuptake inhibitors, gabapentin and erythropoietin. Octreotide was commenced using a short-acting preparation given 3 times daily (dosage 50–250 µg according to body mass) in conjunction with a long-acting (monthly), intramuscular injection (dosage 10–30 mg). The short-acting preparation was weaned following the second monthly injection.

Results During follow-up of 3 months (range 1–8), 3 (50%) patients reported a complete resolution of all postural and neurological symptoms which corresponded with a normalised response to HUT. The remaining patients reported a dramatic improvement but ongoing postural symptoms. No patients developed supine hypertension. Side effects including mild abdominal discomfort and transient diarrhoea were reported in 3 (50%) patients.

Conclusion Octreotide is increasingly recognised as an effective therapy in POTS patients. Both short-acting, subcutaneous (0.9 µg/Kg) and long-acting, intramuscular (10–20 mg) preparations have been...
previously been reported. We conclude that higher dosages of both preparations when administered together are effective and well tolerated in JHS patients with drug refractory POTS.

**161 CATHETER ABLATION OF ATRIAL FIBRILLATION ON UNINTERRUPTED WARFARIN USING STANDARD AND DUTY CYCLED RADIOFREQUENCY ENERGY: SAFE AND EFFECTIVE**
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**Introduction** Catheter ablation (CA) for atrial fibrillation (AF) is growing exponentially. Although ablation for paroxysmal AF (PAF) is associated with shorter procedure times and less extensive left atrial ablation vs persistent AF thromboembolic complications can occur in both sub-groups. Inadequate anticoagulation leads to thrombotic complications and excessive anticoagulation can lead to bleeding risks. Many centres adopt a policy of discontinuing warfarin in the immediate run-up to the procedure, covering the procedure with unfractionated heparin and “bridging” postoperative patients with low molecular weight heparins (LMWH) back onto warfarin. We wished to determine the safety of CA for AF with a therapeutic INR using both the single transseptal approach and duty cycled radiofrequency energy (RF) with non irrigated PVAC catheters and the double transseptal puncture technique using irrigated RF catheters and either CARTO or NAVX electroanatomical mapping.

**Methods** A retrospective analysis of 173 patients who underwent CA for AF while taking uninterrupted warfarin. Procedural target International Normalised Ratio (INR) was 2–3 with a peri-procedural target ACT of 300–550 s. In sub therapeutic INR patients weight adjusted LMWH was used post procedure with warfarin until INR was >2. Standard technique employed was large area circumferential ablation using conventional RF energy or pulmonary vein isolation using duty cycled RF energy. Data was gathered for demographics, procedural INR, total dose of unfractionated heparin, fluoroscopy time, and type of radiofrequency energy used. Endpoints were minor bleeding, major bleeding (requiring transfusion), vascular complications, pericardial tamponade and stroke/TIA within 28 days of the procedure.

**Results** There were 128/173 male patients, age range between 21 and 73 years (mean 57 years). 122 underwent ablation for PAF and 51 for persistent AF. Mean procedural INR was 2.4 (range 1.7–3.9). Mean unfractionated heparin dose was 6000 units (range 1000–14,500). Mean fluoroscopy time for the PVAC group was 23.4 mins (range 8.3–50.1 mins). Mean fluoroscopy time for CARTO/NAVX group was 31 mins (range 14.10–58.44 mins). There were no major bleeding complications. There was 1 minor bleeding complication with a groin pseudoaneurysm. There were 2 cases of pericardial tamponade (2/175%–1.2%) both managed with percutaneous pericardial drainage. There were no stroke/TIAs.

**Conclusion** These data demonstrate that CA for AF by both single and double transseptal technique using both standard RF and duty cycled RF while maintaining a therapeutic INR is a safe procedure. Maintaining a therapeutic INR reduces the risk of embolic events associated with “bridging” heparin without an increase in bleeding complications. This technique is convenient for patients and avoids switching between LMWH and warfarin and ensures patient safety by maintaining therapeutic anticoagulation before, during and after the procedure.