91 ABSTRACT WITHDRAWN

92 NEGATIVE IMPACT OF SOCIOECONOMIC DEPRVATION ON CLINICAL OUTCOMES AFTER CRYOABLATION FOR ATRIAL FIBRILLATION - 18-MONTH STUDY

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Background Socioeconomic deprivation has previously been demonstrated to result in worse heart failure and myocardial infarction outcomes. Lower socioeconomic status has also been shown in published studies to associate with higher incidence of atrial fibrillation (AF), increased mortality and morbidity. However, the impact of socioeconomic deprivation on clinical outcomes post AF cryoablation has yet to be investigated.
Aim To assess the impact of socioeconomic deprivation (as categorised by Scottish Index of Multiple Deprivation, SIMD) on the medical management and clinical outcomes of patients with AF treated by cryoablation.
Methods A retrospective study of paroxysmal or persistent AF patients after cryoablation at Golden Jubilee National Hospital. The parameters included basic demographics, weight, past medical history (inclusive of hypertension, heart failure, type 2 diabetes, stroke or transient ischaemic attacks, prior myocardial infarction, obstructive sleep apnoea) and alcohol misuse. Medical treatment post AF ablation (Beta blocker, non-dihydropyridine calcium channel blocker, flecainide, amiodarone, dronaderone, sotolol, anticoagulant use) were also recorded. Individual's socioeconomic deprivation index, as described SIMD was also recorded (1 – most deprived and 10 – least deprived), and accordingly placed into quintile (SIMD 1-2,3-4,5-6,7-8, 9-10). Follow-up for 18 months. Clinical outcome assessed was rate of readmission for symptomatic documented AF, rate of heart failure admission, stroke, bleeding diathesis and all-cause mortality.
Results 383 patients were identified: 78 from the lowest quintile (SIMD 1-2), 68 from SIMD 3-4, 64 from SIMD 5-6, 62 from SIMD 7-8, and 111 from the highest quintile (SIMD 9-10). No statistical difference exists between age, gender or weight. Lowest socioeconomic quintile has higher incidence of heart failure (p =0.006) and hypertension (p =0.005) but other past medical history was no different. No difference in incidence of alcohol misuse.

Prescription of beta blocker, calcium channel blockers, various classes of antiarrhythmic agents and anticoagulant use post ablation was not statistically different between all groups.

Echo features inclusive of proportion with impaired left ventricular systolic function, left atrial dilatation and significant valvular dysfunction were not statistically different between all groups.

Time from first diagnosis of AF to AF ablation and proportion of persistent AF undertaking AF ablation were not different statistically between all groups.

18 months follow-up demonstrated that both readmission for symptomatic documented AF and recurrence of symptoms at 18 months was statistically higher among patients of lowest socioeconomic quintile (Keplan Meier plot, p = 0.014 and p = 0.006 respectively). Stepwise multiple regression analysis also confirmed multiple socioeconomic deprivation as an independent predictor for more adverse clinical outcome (p = 0.02).

Risk of symptom recurrence at 18 months in patients from the least deprived background is less than one third as compared to the ones from the most deprived background (Odd-ratio 0.32 (0.17 - 0.59)) Risk of readmission for AF in patients from the wealthiest socioeconomic group is also less than a third as compared to those of most deprived social group (Odd-ratio 0.31 (95% CI 0.15-0.61)).

Other clinical outcomes including risk of admissions for heart failure, stroke, bleeding diathesis and all-cause mortality was not statistically different across all groups. Summary: After cryoablation for AF, patients from the lower socioeconomic group are still more likely to experience symptoms recurrence and readmission for symptomatic AF at both 12 months and 18 months follow-up.
Conflict of Interest None

93 INSULIN RESISTANCE IS ASSOCIATED WITH QT PROLONGATION IN THE 1946 BRITISH BIRTH COHORT

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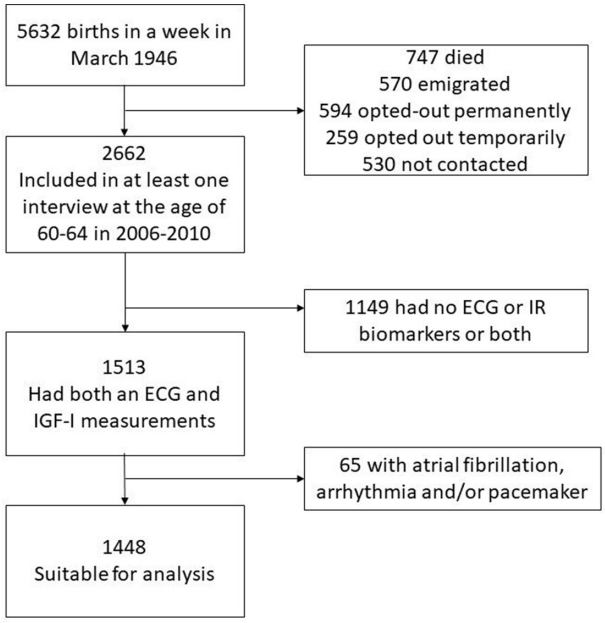
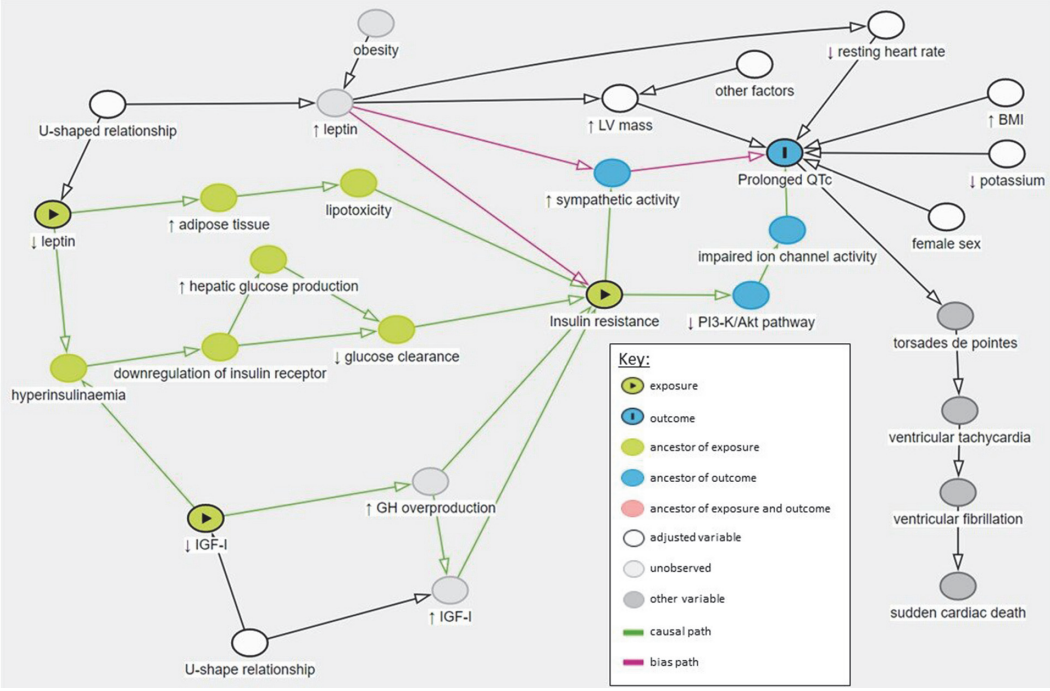
Background Diabetic patients are at increased risk of sudden cardiac death and an association with prolonged heart rate-corrected QT interval (QTc) has been demonstrated. However, the relationship of QTc with circulating blood markers of insulin resistance in the general population is not well understood. The aim of this study was to examine the association between blood biomarkers and QTc interval of insulin resistance in an older age, population-based cohort.



Abstract 93 Figure 1



Abstract 93 Figure 2

Abstract 93 Table 1 Multivariable regression analysis between exposures of interest and QTc

		QTc			QTc			QTc	
Variable		**β-coefficient (95% CI)**	**p-value**		**β-coefficient (95% CI)**	**p-value**		**β-coefficient (95% CI)**	**p-value**
IR biomarker	IGF-I	-0.04 (-0.06, -0.01)	**0.001**	Leptin	-76.44 (-128.61, -23.77)	**0.004**	Adiponectin	0.09 (-0.05, 0.23)	0.226
		-	-		5.73 (-36.12, 48.64)	0.791		-	-
Diabetes		2.72 (-0.37, 5.83)	0.086		3.02 (-0.12, 6.16)	0.060		2.94 (-0.19, 6.10)	0.067
Men		-8.70 (-11.64, -5.76)	**<0.001**		-11.98 (-15.48, -8.49)	**<0.001**		-8.51 (-11.72, -5.31)	**<0.001**
BMI		0.09 (-0.25, 0.43)	0.606		0.45 (0.02, 0.88)	0.037		0.16 (-0.18, 0.51)	0.355
Non-manual		-1.61 (-4.46, 1.22)	0.265		-1.67 (-4.66, 1.31)	0.272		-1.87 (-4.72, 0.97)	0.198
Heart rate		-0.17 (-0.30, -0.04)	**0.011**		-0.19 (-0.32, -0.06)	**0.005**		-0.17 (-0.30, -0.04)	**0.009**
LV mass		0.04 (0.02, 0.05)	**<0.001**		0.03 (0.01, 0.05)	**<0.001**		0.03 (0.02, 0.05)	**<0.001**
Blood potassium		-6.44 (-10.82, -2.07)	**0.004**		-7.27 (-11.70, -2.83)	**0.002**		-6.46 (-10.86, -2.06)	**0.004**
Hypertension		0.39 (-2.39, 3.17)	0.784		0.57 (-2.25, 3.40)	0.690		0.63 (-2.16, 3.42)	0.660
Heart disease		3.12 (-0.22, 6.47)	0.068		2.41 (-1.03, 5.87)	0.172		3.21 (-0.14, 6.59)	0.062

Analyses are by generalised linear models (to 3 s.f.). Significant *p*-values (p<0.05) are highlighted in bold. *Using quadratic polynomial on account of inverted U-shaped relationship. *BMI, body mass index; IR, insulin resistance; LV, left ventricular*

Methods Participants were from the 1946 Medical Research Council (MRC) National Survey of Health and Development (NSHD) British birth cohort (figure 1). The following insulin resistance biomarkers were measured from blood samples at 60-64 years (exposures): insulin, pro-insulin, insulin-like growth factor-I and II (IGF-I/II), IGF binding protein 3, leptin, adiponectin, glucose and glycated haemoglobin A1c. Additionally IGF-I/II was measured at age 53. QTc interval (outcome) was recorded from resting 12-lead electrocardiograms at age 60-64. Generalised linear models were used to statistically analyse the data, and adjustment was made for relevant demographic and health-related confounders. The multivariable analysis was repeated after eliminating participants with a history of cardiovascular disease as a sensitivity analysis. A directed acyclic graph was created to summarise the assumptions about the relationship between insulin resistance biomarkers and QTc (figure 2).

Results A total of 1448 participants were included (48.3% men; QTc mean [interquartile range] 414ms [26ms]). Leptin showed a non-linear inverse U-shaped relationship with QTc, so a quadratic polynomial was used. On univariate analysis QTc prolongation was significantly associated with low IGF-I, low leptin and high adiponectin levels (all p<0.05), but not associated with IGF-II, insulin, pro-insulin and HbA1c (even after removing participants that have not fasted) at 60-64 years. In fully adjusted multivariable models (table 1), associations persisted for IGF-I (β -0.04 ms/ng/ml; 95% confidence interval [CI] -0.06, -0.01; p= 0.001) and leptin (β -76.44 ms/ng/ml; 95% CI -128.61, -23.77;

p=0.004), even after removing participants with cardiovascular disease (IGF-I: β -0.03 ms/ng/ml; 95% CI -0.05, -0.004; p=0.021; leptin: β -82.41 ms/ng/ml; 95% CI -132.38, -31.92; p=0.001).

Conclusion Low levels of IGF-I and leptin (but not high leptin), representing insulin resistance, associate with prolonged QTc interval in older age. As QTc prolongation signals increased risk for sudden death even in apparently healthy people, public health efforts should be stepped up to combat the emergence of insulin resistance. Further research is needed to understand the potential mechanisms involved.

Conflict of Interest N/A

94 FIVE-YEAR REAL WORLD DATA ON TRANSVENOUS LEAD EXTRACTION (TLE) IN A SINGLE LOW VOLUME CENTRE

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Introduction TLE procedure in low volume centres is associated with lower success rate, higher overall complication and mortality rates. We explored the indication of leads extraction, safety and re-implantation rate of cardiac implantable electronic device (CIED) post extraction in our low volume centre [<30 TLE procedures/ year as defined by the ELECTRa study, The European Lead Extraction Controlled study: a European Heart Rhythm Association (EHRA) Registry of Transvenous Lead Extraction Outcomes].

Method Retrospective 5-year analysis of all extraction of leads between 1st January 2016 to 31st December 2020 was retrieved from our electronic database system.

Results All TLE procedures were undertaken in cardiac catheter laboratory with 71 (78%) male and 20 (22%) female patients with mean (sd) age of 66 (14) years were included in the study. More than half (n=50, 55%) of the cohort had severely impaired left ventricular systolic function, 45 (50%) patients were on oral anticoagulation therapy, 21 (23%) patients with diabetes mellitus, 12 (13%) with previous valvular heart surgery and 10 (11%) patients had chronic kidney disease.Out of 115 leads extracted, 32 (28%) were passive and 83 (72%) were active leads. Almost half (n=54, 47%) of the leads extracted were ICD leads with one third of dual-coil leads. Maximum of four leads were extracted from one patient during same procedure. The overall mean (sd) dwelling time of leads is 6(7) years with the oldest lead had been in place for 29 years. Class 1 indication for extraction was predominantly pocket infection (47%), followed by pocket erosion (24%), CIED endocarditis (17%) and lead failure (12%). Mechanical extraction with laser technique (37%) was the commonest method used followed by simple traction (24%), locking stylets (20%) and Evolution® mechanical dissecting sheaths (19%). Complete procedural success was achieved in 95% with one patient (aged 51) required emergency open chest extraction of active right atrial lead due to right atrial perforation and cardiac tamponade on table; the 14-year old lead was successfully retrieved without complication and he had an uneventful leadless pacemaker implantation.

The average length of hospitalization was 19 days for all patients. There was no directly attributed procedural mortality although a female patient (aged 50) with failed renal transplant on haemodialysis died of infected chest haematoma a week after successful extraction of her two 9-year old dual-coil ICD leads. Minor complication was extremely low with one patient requiring intercostal chest drain insertion due to pneumothorax from implantation of externalised pacemaker system after TLE procedure and another patient had localised superior vena cava dissection which healed. Approximately a quarter (23%) of patients did not require CIED re-implantation, 11% of patients had re-implantation with leadless transcatheter pacemaker (Micra, Medtronic) and 6 (7%) patients had subcutaneous ICD (Emblem, Boston Scientific) implantation after TLE procedures. There was no evidence of re-infection within 12 months in all patients.

Conclusion Infection remains the commonest important indication for TLE procedures and this study demonstrates clinical importance supporting the safety profile of competent operators undertaking TLE. The excellent outcome could be attributed in part to a single cardiologist operator undertaking the extraction procedures and therefore able to maintain competency achieving a minimum of 15 TLE procedures annually during the study. CIED infection carries important mortality and morbidity risks with significant implications when proceeding to system extraction. Leadless pacemaker or subcutaneous ICD implantation is a safe option in some subgroup of patients. Limitations: Although this is a retrospective study, it is likely similar good outcome could be conserved if our procedure volume rises exponentially enhancing operator skills.

Conflict of Interest None

95 10-YEAR FOLLOW-UP OF ICD IMPLANTATION IN NON-ISCHAEMIC CARDIOMYOPATHY – AN INSIGHT FROM REAL WORLD PRACTICE IN A LARGE DISTRICT GENERAL HOSPITAL

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Introduction The benefits of implantable cardioverter-defibrillators (ICDs) in ischaemic cardiomyopathy are well established. The DANISH study, a large randomized controlled trial of prophylactic ICD implantation, found no benefit in preventing all-cause mortality in patients with non-ischaemic cardiomyopathy (NICM). However, ESC guidelines recommend ICDs for patients with NICM and LVEF ≤35% who receive optimal medical therapy (IB recommendation). The 2014 NICE guidelines have similar endorsements but prior to that ICDs were not routinely recommended in NICM. We evaluated the long-term outcomes of patients who had ICDs implanted prior to 2014 in a NICM population at a large district general hospital.

Methods An ICD database of 454 patients at our district general hospital was retrospectively reviewed. We identified 70 patients who had ICD insertion for non-ischaemic cardiomyopathy between 2006 and 2014. Mean follow up time was 9 years 9 months (SD 23 months). 39 patients had an ICD inserted for primary prevention and 31 for secondary prevention. Data was collected from patients' electronic notes and analysed with relation to baseline demographics, mortality, complications and both appropriate and inappropriate therapy in those two subgroups.