CA-535-04

PULMONARY VEIN ISOLATION FOR ATRIAL FIBRILLATION USING TRUE HIGH POWER SHORT DURATION VS. CRYO-ABLATION

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Background: Pulmonary vein isolation (PVI) in patients (pts) with paroxysmal (PAF) and persistent (persAF) atrial fibrillation is equally achievable and effective using a cryoballoon (Cryo) or radiofrequency (RF) catheter ablation (CA). The newly introduced high RF power short duration ablation (HPSD) technique has shown promising results in clinical trials. However, data comparing HPSD- to Cryo-PVI is sparse.

Objective: We sought to investigate success rates and procedural differences of HPSD-PVI vs. Cryo-PVI in patients undergoing ablation for PAF and persAF.

Methods: Between 01/2018 and 08/2021 all consecutive pts. undergoing de-novo PVI (HPSD or Cryo) were included in this analysis using specifically designed database. A power setting of 70W/7s (70W/5s at posterior wall) was considered as HPSD. For Cryo-PVI a 28mm balloon was used. Follow-up consisted of out-clinic pts visits, tele-consultation, 48h holter ECG and CIED interrogation if applicable.

Results: A total of 721 pts (46 HPSD, 675 Cryo) were analyzed. In all HPSD (n=46; 19 PAF [41%], 27 persAF [59%] and Cryo pts (n=675; 252 PAF [37%], 423 persAF [63%]) PVI was successfully achieved. Procedure duration was significantly longer for HPSD (108±35min vs. 77±26min, p<0.01) as compared to Cryo. Fluoroscopy time (HPSD 14±5min and Cryo 14±7min; p=1) and dose (HPSD: 3798±2460mGy*cm²; Cryo: 3199±4138mGy*cm²; p=0.333) was comparable in both groups. No major complications occurred in the HPSD group whereas for Cryo in 25 (3.7%; p=0.296) pts complications occurred (16 groin bleedings, 7 transient phrenic nerve palsies, 2 tamponades [1 lethal]). At a follow-up of 290±135 days significantly more pts were free from any atrial arrhythmia after a single procedure using HPSD (38 HPSD [82.6%] vs. 458 Cryo pts [67.9%]; p=0.047).

Conclusion: Pulmonary vein isolation using HPSD is equally effective and safe to Cryoballoon-PVI in patients with PAF and persAF. This analysis revealed a significantly higher arrhythmia free survival after HPSD as compared to Cryo with low complication rates in this relatively small HPSD cohort. The procedure duration for Cryo was significantly shorter. Currently a prospective trial is conducted to corroborate these findings.

ABSTRACT CI-563:
SEX DIFFERENCES IN CIEDs AND ARRHYTHMIA SYNDROMES

Sunday, May 1, 2022
9:15 AM - 10:15 AM

CI-563-01

SEX DIFFERENCES IN THE ASSOCIATION OF OBESITY AND VENTRICULAR ARRHYTHMIA IN PATIENTS WITH IMPLANTABLE CARDIOVERTER-DEFIBRILLATORS

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Background: Previous studies have reported sex differences in the association of overweight and obesity (OW/OB) and cardiovascular outcomes, including hypertension, atrial fibrillation, and coronary artery disease. However, data regarding
the association of body mass index (BMI) with ventricular tachycardia/fibrillation (VT/VF) in males and females are limited.

**Objective:** We sought to investigate sex differences in the OW/OB association with VT/VF in heart failure patients with an implantable cardioverter defibrillator (ICD).

**Methods:** We analyzed the risk of appropriate ICD therapy for VT/VF by sex and weight groups in 5,406 patients who were enrolled in the landmark MADIT (Multicenter Automatic Defibrillator Implantation Trial) and Ranolazine in High-Risk Patients with Implanted Cardioverter-Defibrillator (RAID) trials. A BMI cut-off of 25 kg/m² was used to dichotomize the study population and outcomes were analyzed separately in males and females. The primary endpoint was the first occurrence of VT/VF.

**Results:** The majority of patients were OW/OB category (males 70%, females 78%) and were younger. Among females, the 3-year cumulative event rate of VT/VF was significantly higher among females who were OW/OB when compared to those with a BMI < 25 kg/m² (3-year rates: 19% vs. 11%, p = 0.003, Figure A). In males, the 3-year cumulative event rate of VT/VF was similar for OW/OB patients and for those with a BMI < 25 kg/m² (3-year rates: 26% vs. 25%, p = 0.814, Figure B). Consistently, multivariate analysis showed that in females, being OW/OB was associated with a significant 55% increased risk of VT/VF (HR = 1.55 [95% CI: 1.04, 2.30]; p = 0.031) when compared to females with a BMI < 25 kg/m². In males, there was no statistically significant association between weight groups and the risk of VT/VF (1.03 [0.87, 1.22]).

**Conclusion:** Patient-level data pooled from 5 landmark ICD clinical trials demonstrate that being overweight or obese, is associated with a significantly increased risk for VT/VF in females, suggesting that risk factor modification and weight loss may improve outcomes in this population.

**CI-563-02**

**GENDER DIFFERENCES IN OUTCOMES OF TRANSVENOUS LEAD EXTRACTION. INSIGHTS FROM NATIONAL READMISSION DATABASE**

**Mohamed Shokr MD; Ahmed Maraey; Ahmed Elzanaty; Scott A. Bernstein MD and Mohamed Shokr MD**

**Background:** With increasing use of implantable cardiac devices, the need for transvenous lead extraction has increased which translates to increased procedural volumes. Gender differences in rates of complications in lead extraction are not well known.

**Objective:** The present study aims at evaluating the impact of gender on outcomes of lead extraction.

**Methods:** We identified 71,754 patients who presented between 2016-2019 and underwent transvenous lead extraction. Their clinical data were retrospectively accrued from the National Readmission Database (NRD) using the corresponding diagnosis codes. We compared clinical outcomes between males and females. Odds ratios (OR) for the primary and secondary outcomes were calculated, and multivariable regression analysis was utilized to adjust for confounding variables.

**Results:** Compared to males, females had a higher in-hospital complications including pneumothorax (OR 1.26, 95% CI (1.07-1.4), P = 0.01), hemopericardium (OR 1.39, 95% CI (1.02-1.88), P = 0.036), injury to superior vena cava and innominate vein requiring repair (OR 1.88, 95% CI (1.14-3.1), P = 0.014), (OR 3.4, 95% CI (1.8-6.5), P = 0.01), need for RBCs transfusion (OR 1.28, 95% CI (1.18-1.38), P = 0.01) and pericardiocentesis (OR 1.6, 95% CI (1.3-2), P = 0.01). 30-day readmission was also significantly higher in females (OR 1.09, 95% CI (1.02-1.17), P < 0.01). There was no significant difference in in-hospital mortality (OR 0.99, 95% CI (0.87-1.14), P = 0.95).

**Conclusion:** In females, lead extraction is associated with worse clinical outcomes and higher 30-day readmission.

**CI-563-03**

**GENDER-BASED DIFFERENCES IN LEAD PERFORATION RATES ON COMPUTED TOMOGRAPHY SCANS IN PATIENTS UNDERGOING TRANSENVENOUS LEAD EXTRACTION: RESULTS FROM UC SAN DIEGO LEAD EXTRACTION DATABASE**

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**Background:** Female gender is an independent predictor for peri-procedural complications with transvenous lead extraction. The etiology for this finding is unclear but likely multifactorial. Higher incidence of lead perforation could be a contributory factor for higher complication rates in females.

**Objective:** We sought to assess the rates of lead perforation on computed tomography (CT) scans in females compared to males undergoing lead extraction.

**Methods:** We retrospectively evaluated all patients undergoing transvenous lead extraction at our institution from 1/2017 to 10/2021, utilizing the UC San Diego Lead Extraction Database. Of these, only patients who underwent pre-procedural CT scans with lead extraction protocol were included. This protocol utilized intravenous contrast, electrocardiogram-gating, and three-dimensional reconstruction. Lead perforation was defined as lead tip termination beyond the epicardial margin. Included patients were stratified into two groups based on gender and analyzed.

**Results:** Among 465 patients who underwent transvenous lead extraction, 357 (76.8%) had CT chest lead extraction protocol pre-procedurally. Of these, 251 patients were male (70.3%); remaining 106 were female (29.7%). Females were significantly younger than males (58.9 ± 16.3 years vs 65.9 ± 14.8 years; p < 0.01). Rates of hypertension, heart failure and chronic renal insufficiency were significantly higher in males as compared to females (60.5% vs 39.6%, p < 0.01; 60.6% vs 41.9%, p < 0.01; 18.3% vs 7.6%, p = 0.01). Rates of diabetes and dialysis status were similar between the two groups (25.9% vs 20.2% (p = 0.25), 3.6% vs 6.7%, p = 0.2). Number of leads extracted were similar between the two groups (2.0 ± 0.94 in males vs