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 Implantable 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 ≥ 170 bpm. **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**

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**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 = 0.001) 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 TRANSVENOUS 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 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
1.79 ± 0.76 in females, p=0.05). Duration of implant was also similar between the two groups (101 ± 71 months in males vs 114 ± 71 months in females, p=0.13). Despite the above findings, lead perforation rates were noted to be significantly higher in females as compared to males (15.2% vs 6.8%, p=0.01).

**Conclusion:** Despite younger age and lower comorbidity burden, females were noted to have significantly higher rates of lead perforation as compared to males. Further studies are needed to evaluate the relationship between lead perforation on CT and adverse outcomes in women undergoing lead extraction.

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**CI-563-04**

**EFFECTS OF AGE AND SEX ON CLINICAL AND ELECTROCARDIOGRAPHIC FEATURES IN YOUNG PATIENTS WITH BRUGADA SYNDROME**

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**Background:** Brugada syndrome (BrS) is an inherited arrhythmia that is characterized by male predominance and life-threatening arrhythmic events (LAEs) mainly in middle age. Children with BrS are rare, therefore, the clinical features and sex differences remain unclear.

**Objective:** This study aimed to clarify the clinical characteristics in young BrS patients.

**Methods:** This study included consecutive 69 definite BrS patients (18 females) ≤ 20 years old diagnosed by the Shanghai scoring system between 1998 and 2020 from multiple institutions. The registry included clinical information of both retrospective (i.e. ECGs before enrollment) and prospective follow-up, and clinical backgrounds, ECG changes, genetic mutations were analyzed.

**Results:** Regarding the sex ratio at each age of onset (the age at which the type 1 ECG was firstly recorded), males accounted for 60% of patients ≤ 10 years old, and 93% of those > 10 years old (Fig.1A). During 5.3 ± 5.5 years of follow-up, eight patients (12%) experienced 12 LAEs including SCD (n=2), aborted SCD (n=2), VF (n=4), or sustained VT (n=4). Two patients died of VF storm despite being treated with quinidine and ICD. LAE occurred in 2.2% for a patient per year. In males, the first LAE occurred equally across all ages, in females, conversely, it was found only in those younger than 7 years old (Fig.1B). In the patients with multiple ECG recordings over time, five of nine (56%) female patients exhibited normalization of type 1 ECGs after puberty (Fig.2A to 2E), and the patients didn’t experience LAEs after the ECG normalization. In males, no patients showed the normalization of type 1 ECGs. Mutations in SCN5A were identified in 52%, especially more frequently in infants and toddlers (0-3y, 78%). In particular, the mutations located in the pore region of the cardiac sodium channel were detected more frequently in infants and toddlers than in other age groups (71% vs.25%, p=0.03).

**Conclusion:** In this large cohort of young patients with BrS, we found no gender difference in the incidence of BrS until puberty, but the new-onset was decreased in females after puberty, and some female cases exhibited the normalization of Brugada ECGs. In addition, patients under the age of 3 years had more frequent LAEs and SCN5A mutations, suggesting the relationship of genetic backgrounds.