NON-TRANSVENOUS LEAD IMPLANTATION IN PEDIATRIC AND CONGENITAL HEART DISEASE PATIENTS: EARLY ANALYSIS FROM THE NCDR®

Poster Contributions
Hall C
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Background: Implantable cardioverter-defibrillator (ICD) therapy in children and congenital heart disease (CHD) patients is challenging due to small patient size, complex venous and/or intracardiac anatomy. We sought to determine if patients with CHD or under age 21 had higher rates of non-transvenous lead implantation.

Methods: ICD procedures in patients with CHD or < 21 years of age in the ICD Registry between April 2010 - Dec. 2012 were included. Patients with transvenous (TV) and non-TV lead implants were compared for demographics, type of CHD, and implant indication. Non-TV included subcutaneous, epicardial, and pericardial coil placement, without a TV ICD lead. Univariate associations for continuous variables were assessed using F-test in ANOVA, categorical variables with X² test.

Results: There were 4,614 ICD procedures for 4,527 patients in the cohort, in which 1576 were pediatric and 3076 had CHD. Overall, 97% of leads were TV (N=4477), and 3% non-TV (N=137). Mean age was lower in the non-TV (35.9±23 yr) than TV cohort (40.1±25, p=.05). Height was lower in non-TV (167.1±19cm) vs. TV group (170.4±13, p<.01). There were higher rates of non-TV lead implants among patients with transposition of great vessels (TGV) (16.1% vs. 7.9%, p<.01), and common ventricle (3.6% vs. 0.4%, p<.01). Among the pediatric cohort, the non-TV had lower age (10.3±8 vs. 12.6±8 yr, p=.04), height (163.7±26 vs. 169.1±16 cm, p=.03) and weight (67.2±25 vs. 76.5±27 kg, p=.02). There was no significant difference in TV or non-TV routes between this cohort and all other implants in the registry over same period (TV leads: N=406,010, 97.5%; non-TV: 10,558, 2.5%, p=.09).

Conclusion: ICD Registry data show that non-TV leads were implanted in younger and smaller patients. Higher rates of non-TV implants occurred in patients with TGV and common ventricle. These pediatric and CHD patients are not adequately served by current technology and TV approach to ICD lead implantation.