

Cardiac Sympathetic Denervation As Adjuvant Treatment To Prevent Malignant Arrhythmias In Pediatric Population.

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Background: Cardiac sympathetic denervation (CSD) is a second-line treatment for adrenaline-sensitive channelopathies refractory to drugs.

Objective: Present our series of pediatric CSD for LQTS and CPVT as an adjuvant treatment to medication.

Methods: Between 2011-2018, 30 CSD (28 left, 2 right) were performed in 28 patients (21 LQTS and 7 CPVT, 26 genetically confirmed), aged 8 days-21y. Mean follow-up was 29 months. All were pharmacologically treated prior to surgery, 3 already had ICD. Indications for CSD in CPVT patients were prior cardiac arrest (3/7) and exertion or emotion-induced sustained VT despite medication (4/7). In LQTS, indications included syncope (4/21), VT despite medication (7/21), and high-risk of malignant arrhythmias (10/21) due to medication intolerance or noncompliance, family history of multiple sudden deaths, or T-wave alternation with QRS>650ms. CSD was performed via video-thoracoscopy in all; concomitant right sympatholysis was performed in 4 cases due to severe bilateral palmar hyperhidrosis.

Results: There have been neither intraoperative complications nor deaths. 4 patients had transient palpebral ptosis with mild miosis. Following CSD, 23/28 patients have been continuously monitored via ICD or ILR. After CSD, the vast majority (24/28) have been asymptomatic; three patients experienced syncope and one received an ICD appropriate shock. 7 had VT (3/7 for pharmacologic noncompliance), of which, 3 required an ICD and four improved with medication. 2 other had sporadic non-sustained VT. At f-up, 5 high-risk patients received ICDs in primary prevention due to personal decision, but none have received shocks so far. 1 LQT7 patient with asymptomatic high-density ventricular arrhythmias has not improved at all despite multiple drug combinations and CSD.

Conclusion: CSD is, in experienced hands, an effective and safe technique in children as an adjuvant treatment for severe arrhythmias due to channelopathies. Following CSD, 85% of patients remain asymptomatic. Medication non-compliance is a prominent cause of post-CSD VT, though an ICD is occasionally required despite good compliance and CSD. In our experience, long-term remote monitoring is key for effective follow-up.