

## **Videothoracoscopic Bilateral Sympathetic Denervation in Children with Long-QT Syndrome and Catecholaminergic Polymorphic Ventricular Tachycardia**

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**Objectives:** Left cardiac sympathetic denervation (LCSD) is a good proven surgical option as adjunct therapy for patients with life-threatening ventricular arrhythmias, in reducing arrhythmic events and frequent ICD shocks. Performing bilateral CSD (BCSD) is reported to be more effective and with similar complication rates when compared to LCSD, but there is only a few data about pediatric cases in the literature. We aimed to present the initial outcomes of cases with BCSD performed due to long QT syndrome (Long-QTS) and Catecholaminergic polymorphic ventricular tachycardia (CPVT) in our center.

**Patients and Methods:** We retrospectively reviewed the electronic medical records of our pediatric cardiac arrhythmia center for all patients with a diagnosis of Long-QTS (n=117; 22 with an ICD) and CPVT (n=19; 15 with an ICD), and found a total of 11 cases with BCSD operation. The demographic features, operation data, medical treatment, ICD records and follow-up data for noticed. In all cases, bilateral T2-4 sympathetic ganglions and Kuntz fibers were cauterized videothoracoscopically.

**Results:** Among the 11 cases(5 female), 5 had long-QT syndrome and 6 CPVT. Mean age of the patients was 12.45 years(4-17). Seven cases had a 2-port and 4 cases a 3-port thoracoscopic BCSD operation. The mean operation duration was 45,63 minutes(38-65). Mean postoperative hospital stay was 1.63 days(1-3). Apart from one CPVT case with polymorphic VT during the operation (returned to sinus after defibrillated externally) and one case with pneumothorax (lasting two days), no additional complication or mortality was observed. Mean follow-up after procedure was 17.6 months. In the cases with an indication to reduce recurrent ICD shocks(n=9), mean preoperative shocks of 14.70/year fell to 1,09/year. In the other two patients with an indication of primary prevention (in one case who rejected ICD implantation, and in the other case after extraction of the ICD, due to infection) follow-up continued without any arrhythmic event.

**Conclusion:** Directly performing BCSD appears to be effective and safe in reducing life-threatening arrhythmias and ICD shocks in pediatric CPVT and Long-QTS. But we need further studies to compare it with LCSD for efficacy and safety.