Clinical Outcomes of Left Cardiac Sympathetic denervation: Single Centre experience

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Introduction:
Left cardiac sympathetic denervation (LCSD) has been used for many years in treating refractory ventricular arrhythmias. We report our single-center experience in performing LCSD.

Methods:
We have performed a prospective study of consecutive 18 patients, who underwent LCSD since Nov-2011 until April-2014. Syncope, aborted cardiac arrest (ACA) and appropriate ICD discharge, were classified as cardiac events (CE).

Results:
Median age at LCSD was 12.5 years (range 1.0-52.1), weight was 30.0kg (range 7.8-100), 12(67%) were male. Diagnoses included 7(38.9%) patients with LQTS (including 4(22.2%) with JLN), 7(38.9%) with CPVT, 1(5.6%) with Histiocytoid cardiomyopathy, 1(5.6%) with Emery-Deifuss syndrome, and 2(11.1%) with Idiopathic VF. Prior to LCSD, 9(50%) had experienced ≥10 CE, 6(33%) had 5-to-9 CE, and 3(17%) had 1-to-4 CE, with an overall median of 10(2-87) CE. All patient had tried maximal dose of beta-blockers(BB) before LCSD, 4 were on BB and flecainide, 1 on BB and mexilitine and 1 had tried BB, amiodarone, sotalol and lignocaine. 13(72%) had an ICD before LCSD, all for secondary prevention. Video assisted thoracoscopic approach (VATS) could be performed in 17(94%) patients. Only the smallest patient(7.8kg) underwent a postero-lateral thoracotomy approach as the subpleural ICD coil interfered with VATS ports incisions. Intraoperative complications included 1 VF episode that was promptly managed with esmolol and cardioversion. After this incident we changed our protocol adding administration of local anaesthesia before applying diathermy with no further intraoperative arrhythmia. Long-term side effects included 1 patient with a transient Horner’s syndrome. Over a median follow up of 29.2 months(range 1.7-42.5), 12(67.7%) patients had no breakthrough of CE(BCE), 4(22.2%) had 1-to-4 BCE, 1(5.6%) had 5-to-9 BCE, and 1(5.6%) had >10 BCE. Overall, there was a significant reduction of CE after LCSD(10.0 (2-87) to 0 (0-10); p:0.001). Figure 1. The 1 child with histiocytoid cardiomyopathy underwent heart transplantation for persistent arrhythmias.

Conclusions:
LCSD is a safe and effective technique with few complications in drug refractory ventricular arrhythmias due to channelopathies and other cardiomyopathies. VATS approach is a safe and feasible procedure but may be difficult in very small patients. A significant reduction of BCE has been seen in the majority of patients.