

Thoracoscopic Procedures in Pediatric Patients with Cardiac Arrhythmias

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The objectives: To evaluate the early outcomes of video-assisted thoracoscopic (VATS) procedures as an adjunctive therapeutic approach in pediatric patients with cardiac arrhythmias.

Methods: In 2016-2017 yrs, 15 pts aged 4 to 15 underwent VATS procedures at our institution. Group I – pts with Long QT syndrome (LQTS) (n=7) and catecholaminergic polymorphic ventricular tachycardia (CPVT) (n=5). Group II – pts with third-degree atrioventricular block and body mass less than 15 kg (n=3). In Group I all pts underwent left cardiac sympathetic denervation (LCSD) (low pol of Th1–Th4). In this Group pts received implantable cardioverter defibrillators (ICDs). In all cases beta-blockers therapy were not effective before LCSD. Invasive electrophysiological study (EPS) was performed before and after LCSD. In pts with ICDs EPS was performed via device. Permanent cardiac pacemaker (VVIR mode) was implanted using VATS technology in Group II. Leads were placed to epicardial surface of the left ventricle (screw-in – 1 pts).

Results: Follow-up period was 4 - 12 months. There were no intraoperative and perioperative complications in both groups. The trend to increasing of ventricular effective refractory period was found during EPS just after LCSD. There were no any shocks registered after LCSD in Group I. In 1 pts non-sustain ventricular tachycardia was induced during exercise test. Acute and chronic leads thresholds and R-wave amplitude were appropriate in Group II.

Conclusion: VATS procedures can be safely and effectively performed in most patients with cardiac arrhythmias. This minimally invasive procedure can be used in complex therapeutic approach for reducing of life-threatening cardiac arrhythmias episodes.