

Catheter ablation of idiopathic premature ventricular contraction/ventricular tachycardia in children using Ensite NavX System with limited fluoroscopic exposure: Two years of experience in a new center.

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Aim:This study aimed at presenting the outcomes of patients with idiopathic ventricular tachycardia(IVT)/premature ventricular contraction(PVC) treated with ablation and electrophysiological therapies(EPT) within last 2 years.

Patients and Methods:Patients who were treated with radiofrequency ablation(RFA) and EPT in the Electrophysiology Laboratory of Pediatric Cardiology Clinic, Mehmet Akif Ersoy Chest and Cardiovascular Surgery Training and Research Hospital, Istanbul, Turkey, between November2013 and November2015 were included in this study. The procedures were applied with the accompaniment of a three-dimensional mapping system(TDMS), and by using minimal fluoroscopy.

Results:A total of 26ablation procedures(22VT and 2PVC) were applied on 24patients(16 males and 8 females). The average age and weight of patients during the procedures were 13.6 ± 4.2 years and 50.5 ± 16.4 kg, respectively. The RFA therapy(irrigated RFA for two patients and classical RFA for the remaining) was used in all procedures. The distribution of arrhythmia substrates was as follows:6(25%) had right ventricular outflow tract(RVOT) of which 2 were posterolateral, 1 each were mid-anterior, anterolateral, posterior, and posteroseptal;10(42%) had left VOT of which 5 were right coronary cusp, 4 were left coronary cusp, and 1 was non-coronary cusp; and 8(33%) had left posterior fascicular. Rapid success was achieved in 23patients(96%). Ablation failed in one patient(epicardial). Relapses were observed in three patients(12%) during the follow-up of 9.7 ± 5.3 months. Post-ablation of the RVOT area, relapses were observed in two patients. In second interventions, successful coronary cusp ablations were performed by focusing on VT in the same two patients. In another patient, VT arising from posterior fascicular Purkinje fibers relapsed. The total duration of the procedures and fluoroscopy was 189.3 ± 69.0 min and 3.9 ± 4.9 min, respectively. While the Ensite NavX mapping system was used in all procedures, fluoroscopy was never used in 11 procedures(42%). The duration of applied fluoroscopy was 6.8 ± 4.6 min. No complication was observed during the procedures.

Conclusion: The RFA therapy can be used effectively and with very high success rates in the ablation treatment of IVT/PVC in children without any complication and with or without any need for fluoroscopy because of the advantage provided by TDMS. If necessary, the coronary cusp area can be evaluated to reduce the relapse rate in patients with RVOT area ablation.