

Ablations in the aortic cusp in children: a single center four years experience

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BACKGROUND: Approximately 10%–15% of idiopathic ventricular tachycardia (VT) originate from the left ventricular outflow tract and can be mapped and ablated from within the aortic root, although it can be challenging owing to the complex anatomic relationships of the aortic valve, coronary arteries, and veins. As we know there are many data on aortic cusp ablation in adults, studies are limited in children. In this study, we aimed to evaluate our patients who underwent ablation in aortic cusps retrospectively.

PATIENTS and METHODS: Fifteen aortic cusp ablation procedures were performed in 14 patients (seven females; 50%). First, right ventricular outflow tract was mapped with the EnSite™ system (St. Jude Medical Inc., St. Paul, MN, USA) in all patients, and in some of them also radiofrequency (RF) ablation test lesions were given there. Finally coronary cusp origine was proved in all patients and left heart was catheterized retrogradely through femoral artery.

RESULTS: The mean age was 15.85 ± 1.63 years (10.9-18) and the mean body weight was 58.40 ± 10.83 kg (34-80). Ablation in the Aortic valve was used for manifest accessory pathway in only one patient. The rest of the patients underwent ablation in aortic cusps to eliminate ventricular tachycardia and/or PVCs. The mean percentage of PVCs on ambulatory ECG was 28 ± 19 % (10-75). Limited flouroscopy was used in most of the patients (11/14 patients) during left heart catheterization. The mean procedure time 190.07 ± 47.68 minutes (120-330) and in those the mean fluoroscopy time 7.53 ± 5.62 minutes (0-28). RF ablation was successful in all patients except one. In this patient the focus was very close to the left main coronary, and we performed RF ablation with low energy-short duration. After that VT recurred and successful cryoablation (with an 8-mm-tip cryocatheter) was performed in the same session.

CONCLUSION: Arrhythmias originating from the coronary cusps in this series were successfully and safely ablated with RF in children without injury to the coronary arteries or the aortic valve. Coronary cusp origine should be considered when the transition zone of PVC is borderline and/or ablation in RVOT is unsuccessful.