Ablation of idiopathic ventricular tachycardias arising from the sinuses of Valsalva in pediatric patients: tips and tricks


Objective: To optimize the approaches for catheter ablation of idiopathic ventricular arrhythmias arising from sinuses of Valsalva.

Methods: In 2003-2014, 555 children aged 6-17 yo received invasive treatment of VA in one hospital. 96 (17.3%) of them with ventricular premature beats (VPB) or/and ventricular tachycardia (VT) arisen from sinuses of Valsalva had been included into the study. Only conventional method of mapping was used. The catheter position during the applications near the ostium of the coronary arteries was precisely controlled by continuous fluoroscopy and coronarography. The follow-up period was 3 months. Efficacy, complications, time of procedure and effective dose were examined.

Results: According to results of endocardial mapping pts were divided in two groups depending on the risk of potential complications: group I – “low risk zones” with the distance between the origin of VPB/VT and the ostium of the coronary arteries was more than 12 mm; group II - “high risk zones” with distance <12 mm between the origin of VPB/VT and coronary ostium or near to His bundle projection. Transaortic access was chosen based on evaluation of QRS morphology. 86 (90%) pts had been selected into the group I and 10 (10%) pts – into the group II. In group I radiofrequency catheter ablation was performed in all cases. In group II cryoablation was used for safety reasons. Only in 7 pts cryoablation was performed, in 3 pts earliest activation was found in the ostium of left main coronary artery. In these cases epicardial localization VPB/VT substrate had been recognized and catheter ablation was not performed. No significant difference in time of procedure and effective dose between the groups was found. The efficacy of all procedures achieved up to 100%. There were no complications in both groups.

Conclusions: Transaortic access should be selected without previous mapping of right ventricular and based on evaluation of QRS morphology. Electroanatomic method of mapping is not necessary for these pts. Radiofrequency catheter ablation is appropriate method for “low risk zone”. In “high risk zone” cryoablation should be selected. Continuous coronarography should be performed during ablation for prevention complications in all cases.