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## Predictors of Successful Catheter ablation of Ventricular Arrhythmias in Children: 12 Years Experience in 532 Pediatric Patients

*Termosesov S.A., Khamnagadaev I.A., Garipov R.S., Ilich I.L., Volkova Y.Yu., Kovalev I.A., Shkolnikova M.A.*
*Research and Clinical Institute of Pediatrics at the N.I. Pirogov Russian National Research Medical University, Moscow, Russian Federation*

Objective: to determine the efficacy of catheter ablation (CA) approach based on evaluation of the endocardial mapping (EM) results and prediction of the treatment success in children with ventricular arrhythmias (VA).
Methods: In 2003-2015 532 pts (213 - females) aged 5 to 18 yo received CA for VA in one hospital. Pts were divided into two groups depending on the selected mapping approach of VA. Group 1: 119 pts, 8-17 yo (54 – females): choice of a site for CA was based on the conventional mapping. Group 2: 413 pts, 5-18 years (159 – females). In these pts, a site for CA was chosen according to the calculation of the probability for successful ablation: if presystolic activation time (T) < 28 ms, then the probability of successful CA was considered low. In case of T was 29 - 72 ms - moderate. If T > 72 ms - high. Efficacy of CA, fluoroscopy time, effective dose, and the CA time were evaluated.
Results: The change in the approach to EM significantly affected the efficacy of CA of VA (ORi=3.22; CI=1.94-5.35; p=0.00001). The efficacies of CA of VA were 73.11% and 89.83% in group 1 and group 2, respectively ($\chi 2$=21.57; df=1; p<0.00001; C=0.197). The fluoroscopy times in group 1 ranged from 2 to 101 min (Me=12(IQR:7-20) exceeding those in group 2: 1 to 37 min (Me=4(IQR:2-7) (p<0.00001). Effective doses in group 1 was 0.176-17.6 mSv (Me=4(IQR:2-7) which exceeded that in group 2: 0.06-4.95 mSv (Me=0.325(IQR:0.176-0.616) (p<0.00001). The CA time in group 1 was also significantly longer compared with that in group 2: 1-35 min in group 1 (Me=6 (IQR:3-16) versus 1-27 min in group 2 (Me=4 (IQR:2-7) (p<0.00001).
Conclusions: An optimal protocol of the endocardial mapping for VA in children should include calculation of the probability of successful CA based on the comprehensive evaluation of EM results. Implementation of the approach to CA of the VA based on a comprehensive evaluation of the EM results and prediction of the probability of successful intervention may increase the efficacy of treatment for VA in children.