RFA of drug-refractory arrhythmias in small children under one year old

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The aim of the study was to evaluate the safety and efficacy of RFA in critically ill small children (< 1 year of age) with drug resistant tachycardia accompanied by arrhythmogenic cardiomyopathy and heart failure.

Material: The study included 18 patients aged 4.8 ± 3.7 months. Wolff-Parkinson-White syndrome and atrial tachycardia were detected in ten (53.3 %) and eight (46.7 %) patients, respectively. Patients with structural heart pathology, including congenital heart diseases and laboratory-confirmed myocarditis, were excluded from the study.

Results: The indication for RFA was drug refractory supraventricular tachycardia (SVT) accompanied by arrhythmogenic cardiomyopathy and heart failure. Unsuccessful ablation was observed in two 1-month-old patients who underwent successful ablation 3 months later. The follow-up periods ranged from 0.5 to 9 years (average 4.1 years). Only two patients (11.1%) had tachycardia recurrence 1 and 2 months after RFA, respectively. The RFA success rate was 88.8%. The study did not show any procedure-related complications. Heart failure disappeared within 5–7 days after RFA. Complete normalization of cardiac chambers sizes was documented within 1 month after effective RFA. A three-dimensional CARTO system was used in three patients with body weight > 7 kg. The use of the CARTO system resulted in a remarkable decrease of the fluoroscopy time without vascular injury or other procedure-related complications in all cases.

Conclusions: Our study suggested that RFA may be considered as the method of choice for SVT treatment in small children when drug therapy is ineffective and arrhythmogenic cardiomyopathy progresses.

Key words: supraventricular tachycardia, infants, radiofrequency ablation.