

## MP4-1

### **Catheter ablation of supraventricular tachycardias in children and adolescents – safety and effectiveness**

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Accessory AV- pathways (AP) or dual AV node physiology are the most common substrates for paroxysmal supraventricular tachycardias (SVT) in children and adolescents. Definitive treatment can be achieved by catheter ablation with either radiofrequency (RF) or cryoenergy. Aim of this study was to assess effectiveness and safety of RF- and cryoenergy ablation in a pediatric population.

A total of 562 EP studies (EPS) have been performed in 479 children and adolescents with SVT during the last ten years at our institution. Indications for catheter ablation were patients' preference (67.3%), drug refractory SVT (31.5%) and malignant arrhythmias (1.2%). RF was used in 75%, cryoenergy in 16%. Both energy sources were used in 8%, no ablation was performed despite identification of a substrate in 1%. Congenital heart disease was present in 39 cases (6.9%).

APs were the substrate in 54.6% of the cases whereas AVNRT was found in 42.6%. APs and AVNRT were present in 2.8%. Overall procedural success rate was 93% independent from the substrate. APs were successfully treated in 90.5% (RF) / 90% (cryoenergy). Slow pathway ablation / modulation was achieved in 98.5% (RF) / 100% (cryoenergy). In 70 patients, repeated EPS due to SVT relapse or recurrent preexcitation pattern was necessary. In 3 cases (0.5%) pacemaker implantation due to AV-block after RF ablation was necessary (AVNRT n=2; AP n=1). On routinely performed coronary angiography after ablation insignificant coronary artery narrowing was detected in 2 patients (0.3%) after RF ablation of right posteroseptal AP. No cryoenergy related coronary artery abnormalities were evident. In 1 case (0.2%), thrombosis of the right coronary artery occurred after intercoronary mapping with a 2F EP catheter and was treated by local application of tissue plasminogen activator. In 2 cases (0.2%), pericardial effusion was evident and required puncture after cryo- and RF- ablation, respectively. Vessel injuries at the puncture site with need for surgery occurred in 6 cases (1%).

Catheter ablation of SVT in children and adolescents was safe and effective. Major complications were noted only after RF-application. Therefore cryoenergy may be considered as energy source of choice for ablation in the rightseptal area.