POSTINTERVENTIONAL RECURRENT SUPRAVENTRICULAR TACHYCARDIA DUE TO TRANSIENT RIGHT BUNDLE BRANCH BLOCK AFTER SUCCESSFUL ABLATION OF A MIDSEPTAL ACCESSORY PATHWAY IN A PATIENT WITH PREEXCITATION SYNDROME

INTRODUCTION

Right bundle branch block (RBBB) may occur by catheter positioning during electrophysiological study (EPS). As this mechanical irritation is normally transient and not associated with significant side effects data of complications are limited.

CASE PRESENTATION

We present a 20 months old girl (10 kg, 86 cm) with preexcitation syndrome and a history of recurrent episodes of apparent life-threatening events. After hospital admission an ECG showed a delta wave, therefore a therapy with propranolol was started. Subsequently no tachycardia episodes were monitored. Due to the life threatening episodes even under propranolol therapy the patient was transferred to our hospital to perform an EPS.

The EPS was performed using the NAV-X® system. At the beginning of the examination a sinus rhythm with a delta wave was present. While positioning the electrode catheters a RBBB occurred and remained traceable during the rest of the examination. Atrial stimulation showed an antegrade refractory period of the accessory pathway (AP) of 220 ms. Supraventricular tachycardia (SVT) was not inducible. According to the current guideline radio frequency (RF) ablation was performed and a midseptal AP was successfully ablated (Fig. 1).

Two hours later the patient developed SVT with RBBB. After administration of adenosine sinus rhythm occurred only for one beat without preexcitation and subsequent return of the SVT. Despite propafenone administration sinus rhythm could not be restored. However heart rate control could be achieved under continuous amiodarone administration with recurrent termination of the SVT and direct onset of the SVT after one sinus beat (Fig. 2). SVT stopped immediately after loss of RBBB after 80 hours.

The electrophysiological mechanism of the SVT with unusual direct start of SVT after one sinus beat was due to delayed excitation of the right ventricular myocardium due to RBBB and relapse of retrograde conduction of the AP. As a result of this time lag the atrial myocardium was inducible again. Despite the relapse of the retrograde conduction the risk of sudden cardiac death through rapid antegrade conduction via the AP was eliminated as no preexcitation recurred in any of the following ECGs. In the follow-up examinations after 1, 4 and 8 months no more SVT episodes were detected. Ablation of the retrograde conduction of the AP will be taken into consideration when the patient has gained more weight. Meanwhile the patient remains free of SVT under propranolol therapy.

CONCLUSION

Transient RBBB in combination with an accessory pathway can cause sustained SVT which may be difficult to control.