Flecainide failure and proarrhythmia in pediatric supraventricular tachycardia: effectiveness and safety of different treatments

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BACKGROUND.
In our institution flecainide is the first choice drug in the chronic prophylaxis of supraventricular tachycardia (SVT). Among class I-C drugs, Flecainide is favorable due to its dosability and pharmacokinetics. In this study, from a cohort of 154 patients we selected those non-responder to Flecainide, in order to investigate efficacy and safety of different antiarrhythmic drugs.

METHODS AND RESULTS.
We analyzed 154 patients (4.21±3.20 years) with supraventricular reentrant tachycardia (with the exclusion of atrial flutter) treated with flecainide alone or flecainide and beta blocker at maximal dose (propranolol or atenolol). Beta blockers were added exclusively in case of recurrence of SVT despite therapeutic range of serum Flecainide levels. Among these 154 patients, 16 (4.65±2.13 years) showed therapeutic failure, defined by recurrences of arrhythmias (more frequently than once per month) and/or incessant tachycardia. The supraventricular arrhythmias in non-responders showed different mechanisms: 7 concealed accessory pathway atrioventricular reentrant tachycardias (cAVRT), 3 Wolff-Parkinson-White (WPW), 4 atrioventricular nodal reentrant tachycardia (AVNRT), 2 persistent junctional reciprocating tachycardia (PJRT). Pharmacological failure was eligible for alternative therapy with sotalol (8 patients) 7 mg/kg/die, diltiazem (5 patients) 4 mg/kg/die, sotalol and diltiazem together at a dose respectively of 5 mg/kg/die and 4 mg/kg/die (3 patients). The mean time of follow up was 1.90 ± 1.47 years (range 0.27-3.23). Therapeutic success was achieved in 7/8 (87.5%) patients with sotalol, 4/5 (80%) patients with diltiazem and all the 3 patients (100%) treated with sotalol together with diltiazem. Totally, the alternative therapy based on Sotalol and/or Diltiazem showed a lower incidence of recurrence of SVT in a year (2/16 patients, that is 12.5%) with no incessant tachycardia (0%), whereas the standard treatment based on flecainide and beta-blockers registered greater rate of recurrence (6/16 that is 37.5%) and a larger onset of incessant tachycardia (3/16 patients, 18.7%).

CONCLUSIONS.
In pediatric patients unsuccessfully treated with flecainide, different antiarrhythmic drugs were effective and safe. Despite high success rate of flecainide (138/154; 89.61%) it’s mandatory to be aware about recurrences of SVT and proarrhythmic related risks. Sotalol and diltiazem may be considered alternative and effective antiarrhythmic drugs.