

Efficacy and Adverse Events Related to Initiation of “Second-Line Medications” for Supraventricular Arrhythmias in Children

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Introduction: Sotalol and Flecainide are used as second line agents for the treatment of supraventricular arrhythmias in children and are typically initiated in an inpatient setting. Efficacy and adverse events in this cohort have not been well described.

Methods: Utilizing an institutional pharmacy database (2002-2014), all inpatients < 18 years of age initiated on sotalol or flecainide as second line treatment of supraventricular tachyarrhythmias were identified. Medical records, pharmacy registers, ECGs and Holters were retrospectively reviewed.

Results: In total, 335 pts were identified (Sotalol: n=254, Flecainide: n=81), with most (64%) being infants (<1 yr). Congenital heart disease (CHD) was present in 46% and 7% of pts initiated on sotalol and flecainide, respectively. The median starting dose of sotalol was 138 mg/m² (IQR:117-150). In total, arrhythmias were controlled with sotalol initiation in 210 (83%) of children, with an additional 6 (3%) controlled after addition of a betablocker. Sotalol dosing had to be decreased in 5 (2%) and stopped in 3 (1%) due to QT prolongation. Two pts had torsades de pointes and died on sotalol, both of whom had complex CHD. The median starting dose of flecainide was 100mg/m² (84-119). Arrhythmias were controlled with flecainide initiation in 62 (77%), with an additional 5 (6%) controlled after addition of a betablocker. Flecainide dosing had to be decreased in 4 (5%) and stopped in 1 (1%) due to QRS prolongation. One pt with known cardiomyopathy had sustained VT and subsequently died on flecainide. In 11 pts, sotalol and flecainide were used in combination and successfully controlled the arrhythmia in all cases without proarrhythmia. There was no difference in efficacy between those with and without CHD (p=NS) or between infants and noninfants (p=NS) for either medication.

Conclusion: In children who fail therapy with first line agents for treatment of supraventricular arrhythmias, sotalol and flecainide are efficacious in the majority of cases. Although predominantly safe in otherwise healthy patients, ECG changes can occur, and in patients with CHD, proarrhythmic side effects can be seen. Inpatient monitoring should thus be considered during initiation, particularly in those with preexisting cardiac disease.