**IV Amiodarone vs IV Sotalol For Use In Postoperative Junctional Ectopic Tachycardia (JET): A Randomized Study**

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**Background**
- JET is a post-operative arrhythmia that can result in hemodynamic compromise in children after congenital heart surgery.
- In many centers, amiodarone is the pharmacologic treatment of choice. Though effective, it can be associated with serious dose-related adverse effects.
- There is a low rate of cardiovascular collapse and adverse events with the use of sotalol in patients with congenital heart disease (CHD).
- It is unclear whether IV sotalol is as safe and as effective as amiodarone in the treatment of JET.
- This report summarizes our results to date.

**Aims**

**Aim 1:** To evaluate the safety of IV sotalol as well as in comparison to IV amiodarone in patients postoperatively with JET through hemodynamic monitoring.

**Aim 2:** To evaluate the efficacy of IV sotalol as well as in comparison to IV amiodarone by assessing tachycardia time to rate control and return to normal sinus rhythm.

**Methods**
- Patients scheduled for a repair of an atrioventricular canal defect, ventricular septal defect (VSD), Tetralogy of Fallot (TOF) and neonates (<6 mo) undergoing cardiac surgery were consented pre-operatively.
- Patients with confirmed JET were randomized to IV amiodarone or IV sotalol treatment.
- Efficacy was determined by successful termination of JET, time to adequate rate control, and recurrence of JET.
- Adverse events were reported.

**Results**
- Since September 2019, 85 patients have qualified for enrollment and 50 were consented.
- Ten patients had documented postoperative JET. Five patients were randomized into the study.
- Of the five not randomized, one did not require medications, one was not approached, and three declined enrollment.

<table>
<thead>
<tr>
<th>CHD type (age)</th>
<th>Drug</th>
<th>Dosage</th>
<th>Outcome (Time to adequate rate control (&lt;165bpm))</th>
<th>Adverse Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total anomalous pulmonary venous return (TAPVR) (15 days)</td>
<td>sotalol</td>
<td>1 mg/kg bolus over 60 minutes Repeat 1mg/kg bolus for different rhythm</td>
<td>Successfully AAI paced (60 minutes)</td>
<td>Patient deceased from suspected bacterial sepsis due to Klebsiella pneumoniae. Unrelated to administration of Sotalol.</td>
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<tr>
<td>TOF (5 months)</td>
<td>amiodarone</td>
<td>5 mg/kg bolus x 3 3mg/kg bolus x 8 x Over 60-120 minutes 5-20 mg/kg/day infusion x 8 days</td>
<td>Successfully DDD paced (Intermittent control over 5 days)</td>
<td>None</td>
</tr>
<tr>
<td>Transposition of the Great Arteries (TGA), VSD (6 days)</td>
<td>sotalol</td>
<td>1 mg/kg bolus x 2 over 60 minutes</td>
<td>Successfully AAI paced (1st bolus 60 minutes) (2nd bolus 120 minutes)</td>
<td>None</td>
</tr>
<tr>
<td>TGA (14 days)</td>
<td>amiodarone</td>
<td>5 mg/kg bolus x 2 over 60-90 minutes 5-10 mg/kg/day infusion x 3 days</td>
<td>Successfully AAI paced (1st bolus, no resolution) (2nd bolus 240 minutes)</td>
<td>Patient deceased from cardiopulmonary failure secondary to severe pulmonary hypertension present since birth. Unrelated to administration of Amiodarone.</td>
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<tr>
<td>TOF (7 weeks)</td>
<td>sotalol</td>
<td>1-2 mg/kg bolus x 2</td>
<td>Successfully AAI paced (N/A) prophylactically given (2nd bolus 90 minutes)</td>
<td>None</td>
</tr>
</tbody>
</table>

**Conclusions**
- We have a low incidence of postoperative JET at our institution (11.7%).
- Both medications have achieved rate/rhythm control with no significant adverse events believed to be attributed to either medication.
- We will continue to collect data to determine if IV Sotalol is as safe and as effective as IV amiodarone in patients with postoperative JET.