

## MP4-8

### **Prolonged QTc in atrial septal defect – an example of mechano-electrical feedback due to right ventricular volume overload?**

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**Objectives:** The aim of our study was to assess the effect of long-term right ventricular (RV) volume overload on repolarization. The reason was a frequent observation of prolonged QTc intervals in children prior to atrial septal defect (ASD) closure.

**Methods:** QRS, QTc and JTc intervals were measured manually from leads II and V5 of standard ECGs in 45 children with an isolated ASD a day before and at least 6 months after the ASD closure. Each QTc was compared to gender and age matched normal values. RV dimensions were obtained from echocardiographic M-mode images.

**Results:** The prevalence of prolonged QTc decreased from 22.2 to 2.2 % after surgery ( $p= 0,007$ ). Individual QTc intervals shortened significantly (Table) whereas QRS duration did not change. There was a highly significant correlation between the change in QTc and JTc intervals ( $R=0.741$ ,  $p<0.001$ ). RV dimensions did not correlate with QTc values. Inter- and intra-observer coefficient of variation for QTc measurements was 2.53 and 1.45 %, resp.

QTc ms	Prior to surgery	After surgery	P value
Lead II mean (SD)	418 (25)	380 (25)	<0.001
Lead V5 mean (SD)	412 (26)	378 (25)	<0.001

**Conclusions:** Prolonged QTc intervals occur frequently in children with hemodynamically relevant ASD and may not reflect an inborn channelopathy but rather a reversible effect of myocyte stretch on ion channel function. Such mechano-electrical feedback might participate in arrhythmogenesis in patients with more complex heart defects and significant residual RV volume overload (Supported by MHCZ-DRO, University Hospital Motol, Prague, Czech Republic 00064203).