PO-614-05

A COMMUNITY HOSPITAL REVIEW OF WATCHMAN OUTCOMES TO DETERMINE SAFE DISCHARGE PROTOCOLS
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Background: Left atrial appendage occlusion (LAAO) devices are increasingly used to decrease the risk of stroke in atrial fibrillation patients with contraindication to oral anticoagulation. Discharge protocols after this procedure are variable, and same day discharge (SDD) may improve inpatient bed utilization.

Objective: To evaluate outcomes of Watchman FLX LAAO device (FLX) patients to determine if SDD would be feasible and safe in a community hospital setting.

Methods: Single center retrospective chart review of all FLX implants from March through August 2021. Reviewed patient demographics, procedure duration, complications, length of stay (LOS), 7-day readmissions, 30-day readmissions. Implants from March through August 2021. Reviewed patient demographics, procedure duration, complications, length of stay (LOS), 7-day readmissions, 30-day readmissions.

Results: 38 patients aged 77.11 ± 92.82 ± 2.4 yrs received a FLX. CHADS2VASc score was 4.5 ± 1.19. Procedure time was 92.82 ± 21.59 minutes. Figure 8 sutures were removed at 4 hours post procedure in 84.21% of cases. LOS was 1.13 ± .66 days. Two patients accounted for a longer LOS; one due to drop in hemoglobin that was deemed sheath blood loss and the other due to hypotension and atrial fibrillation. One patient required transfusion prior to discharge. Anticoagulation strategies post procedure were direct oral anticoagulant + aspirin 81.58%, warfarin + aspirin 15.79%, and dual antiplatelet 2.63%. There was one death due to stroke 4 months post procedure. One patient was re-admitted within 7 days with rapid atrial fibrillation. 5 patients (13.16%) were admitted within 30 days with a GI bleed. There were no significant pericardial effusions or device migrations. 97.4% of patients had oral anticoagulation discontinued at the time of chart review. No device related complications. With adequate risk assessment related to anemia, vital signs, and rhythm management, SDD seems feasible. These data will lead to an institutional SDD plan.

Conclusion: During our 6-month evaluation period, placement of FLX in an elderly population with high CHADS2VASc score had a low LOS and few acute complications. With adequate risk assessment related to anemia, vital signs, and rhythm management, SDD seems feasible. This data will lead to an institutional SDD plan with protocols of careful follow up plus re-evaluation of post procedural anticoagulation strategies to limit bleeding in vulnerable patients.

PO-614-06

SMART WATCH SYNDROME IN PEDIATRICS - HOW WELL DOES IT PREDICT ARRHYTHMIA?
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Background: Smart watches have the capability of assessing heart rate (HR) and rhythm; some can produce a single lead ECG tracing. These features may enhance detection of atrial fibrillation in adults based on a recent study. Tachyarrhythmias in children such as supraventricular tachycardia (SVT) may also be detectable with a smart watch. Alternatively, misunderstood or inaccurate smart watch data may lead patients to seek unnecessary evaluation.

Objective: Assess the likelihood of a true arrhythmia in pediatric patients presenting with concerns about smart watch cardiac data.

Methods: Single center retrospective review of children aged 10-18 years who had ever presented to the pediatric cardiology clinic with concerns related to smart watch cardiac data. The primary study outcome was diagnosis of arrhythmia based on clinical evaluation or documentation of arrhythmia by clinical testing.

Results: There were 126 patients (mean age 15.6 ± 2.4 yrs) that presented with a smart watch based rhythm concern - tachycardia in 89%. Symptoms were present in 95 (75%); with palpitations accounting for 78% of those. Smart watch measured HRs were available in 121/126 (96%) with 45 (37%) reporting HR ≥ 190 bpm. Presenting smart watch data was sufficient to diagnose SVT in 3. Additional testing was used to confirm or rule out arrhythmia in 72 (57%). The majority, 83 (66%), were discharged after a single visit +/- testing. In all, 19 / 126 (15%) patients were diagnosed with true arrhythmia: 13 SVT, 3 Wolff Parkinson White, 2 atrial tachycardia, 1 ventricular ectopy. The odds of a true arrhythmia diagnosis with symptoms vs no symptoms was 3.2 (95%CI 0.7 - 14.5); and with HR ≥ 190 bpm vs HR < 190 was 14.3 (95%CI 3.8 - 52.8). The positive predictive value of HR ≥ 190 AND symptoms together to predict arrhythmia was only 39% (95%CI 28 - 52). The negative predictive value for arrhythmia having neither symptoms nor HR > 190 was 95% (95%CI 75 - 99).

Conclusion: The likelihood of a true arrhythmia in pediatric patients presenting with a smart watch based HR concern was low. Symptoms and HR > 190 improved but did not optimize the predictability of an arrhythmia. The absence of symptoms or HR > 190 bpm predicted no arrhythmia in 95% of patients. Rarely, smart watch EGMs or trend data was sufficient for arrhythmia diagnosis.

PO-614-07

CONDUCTION SYSTEM PACING - A CHANGING LANDSCAPE BASED UPON BETTER IMPLANTATION PARAMETERS OF LEFT BUNDLE COMPARED TO HIS BUNDLE PACING
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Background: Conduction system pacing (CSP), including His bundle (HBP) and left bundle (LBP), is a rapidly emerging modality that facilitates single lead synchronous ventricular depolarisation. How best to choose between the two pacing method is not clear.

Objective: To compare the HBP and LBP of the first 72 cases performed in a single centre.

Methods: All cases of CSP implants from 2017 to 2021 at the Royal Brompton Hospital were analysed. Patient and procedural
characteristics were collected including procedure time, fluoroscopy use and electrical parameters.

**Results:** A total of 72 CSP implants were performed with a variety of pacing configurations including HBP (35), His optimised-CRT (2), LBP (34) and left bundle optimised-CRT (1). Implants were a mixture of de-novo implants (67) and device upgrades (5). During the study period there was a transition from HBP to LBP (Figure 1). Back-up leads were placed in 29% (10) of HBP systems, none were required in LBP systems. R-waves were larger (12.3 vs 3.2mV, $p<0.01$) and capture thresholds lower (0.68 @ 0.4/0.5ms vs 1.32 @1ms, $p<0.01$) with LBP. Intrinsic QRS duration was similar between the two groups (135 vs 120ms, $p=0.3$). LBP resulted in a significant shortening of QRS duration (135 vs 111ms, $p<0.01$) and HBP resulted in a non-significant shortening of QRS duration (130 vs 118ms, $p=0.22$) (Figure 2). Procedure times were shorter for LBP compared to HBP (88 vs 106min, $p=0.03$). The only complication was 1 haematoma not requiring intervention following a HBP implant; there were no lead dislodgements.

**Conclusion:** Our early experience of CSP shows that the implant procedure is shorter and electrical parameters better with LBP compared to HBP. There was a switch from HBP to LBP over the period studied. Both are viable, safe techniques in a centre establishing a CSP program.

**PO-614-08**

**SODIUM CHANNEL Na\textsubscript{v}1.6 AND NA-CA EXCHANGER REMODELING CONTRIBUTES TO ARRHYTHMOGENIC LATE SODIUM CURRENT AND Ca\textsuperscript{2+} SPARKS IN THE PRESENCE OF D96V MUTANT CALMODULIN**

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**Background:** Calmodulin (CaM) facilitates sodium channel (Na\textsubscript{v}) inactivation, thereby preventing proarrhythmic late sodium current (I\textsubscript{Na}). To date, a link between arrhythmogenic mutations in CaM and Na\textsubscript{v} dysfunction is not well established. Outside of Na\textsubscript{v}1.5, dysfunctional inactivation of Nav1.6 promotes late I\textsubscript{Na} mediated arrhythmias.

**Objective:** Investigate Na\textsubscript{v}1.6 dysregulation by arrhythmogenic calmodulin (CaM) mutant D96V.

**Methods:** Na\textsubscript{v}1.6-expressing CHO cells, transgenic mice, super-resolution microscopy (sub-diffraction confocal imaging [sDCI], STED, STORM), scanning ion conductance microscopy (SICM)-guided “smart” patch clamp.

**Results:** STED revealed enlarged Na\textsubscript{v}1.6 clusters in CHO cells transfected with D96V-CaM compared to WT-CaM. In transgenic mice with cardiac-specific D96V-CaM expression (cD96V), sDCI revealed D96V-CaM distributed in a striated pattern (consistent with T-tubular localization) along with ryanodine receptor (RyR2). Na\textsubscript{v}1.6 clustering was quantified with STORM: In both WT and cD96V hearts, 50% of Na\textsubscript{v}1.6 clusters localized 100nm from RyR2. Intriguingly, Na\textsubscript{v}1.6 density within these regions increased 67% in cD96V relative to WT. The functional consequences of this structural Na\textsubscript{v}1.6 remodeling was assessed with SICM-guided “smart” patch allowing for the recording of Na\textsubscript{v} activity localized at T-tubule openings. cD96V myocytes displayed increased cluster size and frequency of late Na\textsubscript{v}1.6 burst openings. Previous studies have implicated such aberrant late Na\textsubscript{v} activity in proarrhythmic Ca\textsuperscript{2+} mishandling. To assess the potential for such, we investigated sodium-calcium exchanger (NCX) localization near Na\textsubscript{v}1.6. STORM revealed that 77% of Na\textsubscript{v}1.6 clusters localized <100nm from NCX in WT compared to 89% in D96V hearts. Na\textsubscript{v}1.6 density within these regions increased 48% in cD96V relative to WT. Interestingly, NCX cluster density was preferentially increased near Na\textsubscript{v}1.6 in cD96V hearts. In functional imaging studies, cD96V myocytes displayed larger, more frequent Ca\textsuperscript{2+} sparks relative to WT which was reversed by cardiac-specific Na\textsubscript{v}1.6 knockout.

**Conclusion:** To our knowledge, this is the first report of proarrhythmic cardiac structural remodeling secondary to a CaM defect, providing mechanistic insight into calmodulinopathy.

**POSTER PO-615:**

**Featured Posters: Allied Professionals and Basic Science at Pod 2**

Friday, April 29, 2022
12:30 PM - 2:30 PM

**PO-615-01**

**ROLE OF KCNQ1 REGULATION IN VARIABILITY IN ACTION POTENTIAL PROLONGATION BY IKR BLOCK**

Yuko Wada MD, PhD; Lili Wang PhD; Lynn D. Hall; Laura L. Short; Ashley E. Chew MS; Joseph F. Solus PhD and Dan M. Roden MD, FHRS