



FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

**Cartagena 2018**

**Autores:**

Jhonattan Benavides , Carlos Andres Tapias , Julian Lugo , Hector M. Medina , Oscar M. Pérez-Fernández , Luis Carlos Sáenz , Diego Rodríguez

**A clinical experience with Subcutaneous Implantable Cardioverter Defibrillator versus Transvenous Implantable Cardioverter Defibrillator**

**Background/Introduction:**

Patients with transvenous Implantable Cardioverter Defibrillators (T-ICD) have a significant risk of complications such as lead displacement, pneumothorax, hematoma, vein occlusion, tricuspid regurgitation and infections. A subcutaneous ICD (S-ICD) is an excellent alternative for patients without pacing indications. Safety and efficacy of this new device has been proven in previous trials. We describe our experience with S-ICD patients and compare them with T-ICD users.

**Objectives:**

The aim of this study is to describe patients who underwent S-ICD implantation and compare them with T-ICD.

**Methods:**

S-ICD patients were retrospectively analyzed and compared with an aleatory sample of patients who underwent T-ICD implantation at the same period of time. Demographic, clinical and device variables were collected for all patients. Means and standard deviation (SD) or median and interquartile ranges (IQR) are presented for continuous variables; for categorical variables, frequencies and percentages were used. To compare S-ICD vs T-ICD patients, T student test, Mann-Whitney U test or  $X^2$  test were performed as appropriate according to normality tests.

**Results:**

From January 2015 to December 2017, a total of 36 patients underwent to S-ICD implantation in our arrhythmia center were compared to an aleatory sample of 36 T-ICD patients at the same period of time. The main differences were age of implantation, indication for prevention, functional class and type of anesthesia. The main reason for implanting was patient's age. Successful defibrillation test was achieved without leads rearrangement. Results are presented in Table 1.

**Conclusions:**

In our cohort, S-ICD implant compared to T-ICD had not differences in terms of safety and no devices implant complications were found. The main differences were the age of implantation, indication for implantation, functional class and type of anesthesia. Long-term follow up is needed to determine safety and efficacy outcomes in S-ICD population.

**Sección:**

Dispositivos Electrónicos Implantables Cardiovasculares

**Tipo final:**

**Ficheros adjuntos:**

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FIRST SCIENTIFIC SESSIONS

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**Cartagena 2018**

**Autores:**

Carlos Tapias , Diego Rodriguez , Fermin Garcia , Luis Saenz

**A novel method for mapping left ventricle ostium arrhythmias**

**Background/Introduction:**

A possible reason for failure in PVC ablation is inaccurate mapping, particularly when the arrhythmia origin is intramural and inaccessible to endocardial or epicardial contact mapping. Exact localization of the site of origin could predict distant anatomical sites for the therapeutic approach with ablation by catheter

**Objectives:**

A case of accurate mapping and successful ablation of an intramural ventricular arrhythmia targeted from the endocardium of the LV ostium

**Methods:**

N/A

**Results:**

A 51 YO female with PVC induced cardiomyopathy was taken to ablation, the clinical PVC had RBBB morphology with right inferior axis and more negative in aVL than aVR ( figure 1A). A site of origin of the arrhythmia near the LV outflow tract was suspected. After obtaining arterial and venous femoral access, using a long deflectable sheath the coronary sinus was cannulated and advanced into the GCV over a guide wire. Then using a guide catheter a wire was advanced into the first septal venous branch and connected as a unipolar mapping electrode. An activation map was made of the clinical PVC demonstrated a very early local signs in relation to clinical PVC in this region (fig 1A). An ablation catheter was advanced retrogradely in the LV and positioned opposite to the wire under fluoroscopic guidance (fig 1B), and was later than the intramural activation, which was the earliest. At the earliest endocardial site, pacemapping was correlated with 95.7% with the clinical PVC (figure 1B). Here radiofrequency application resulted in immediate arrhythmia elimination (fig 1C) without recurrence. The ablation lesions at the end of the procedure were located in the lateral aspect of the ostium of the left ventricle immediately contralateral to the site of earliest intramyocardial earliest activation (fig 1 D)

**Conclusions:**

Intramural mapping via wire in the septal perforators is helpful in more accurately localizing PVC origin and guide the best approach to ablation based on anatomical proximity

**Sección:**

Reportes del caso

**Tipo final:**

**Ficheros adjuntos:**

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FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

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## **ABLACION DE ARRITMIAS DEL TRACTO DE SALIDA EN PACIENTES SIN CARDIOPATIA ESTRUCTURAL**

**Background/Introduction:**

Las arritmias del tracto de salida (TS) en pacientes (pts) sin cardiopatía estructural pueden ser muy sintomáticas y cuando son muy frecuentes pueden llevar a taquicardiomiopatía e insuficiencia cardíaca.

**Objectives:**

El objetivo es presentar nuestra experiencia en la ablación de este tipo de arritmias.

**Methods:**

Análisis retrospectivo de 37 pts, 24 mujeres (65 %), edad  $46.6 \pm 18.6$  (18-80 años), FEVI promedio fue de  $62 \pm 7.3$  %, muy sintomáticos, con arritmias del TS de ventrículo derecho (TSVD) o izquierdo (TSVI) sometidos a ablación con radiofrecuencia (Abla) en nuestra institución. Se mapeó el TSVD, TSVI, senos de valsava y seno coronario para localizar el foco El seguimiento fue de  $3.6 \pm 3.16$  (0.3 - 10.5 años).

**Results:**

Se efectuaron un total  $1.19 + 0.5$  (1-3) procedimientos por pte. La arritmia se presentó como extrasístola ventricular aislada (EV) muy frecuente,  $26 \pm 9$  % del total de latidos en 24 hrs (13% a 50%) en 30/37 pts (81%), en 5 de estos 30 pts (14%) la EV se asoció a taquicardia ventricular no sostenida (TVNS) y como taquicardia ventricular monomorfa sostenida se presentó en 7/37 pts (19%). Se utilizó Mapeo electro anatómico con Carto 3 en 28/37 pts (76%). La localización y resultados de la ablación se detallan en la tabla N° 1. En 5/37 pts (14%) la arritmia tenía una localización parahisiana. Dos pts (5%) presentaron hemopericárdico secundario al procedimiento que se resolvieron mediante drenaje percutáneo. Durante el seguimiento, fue necesario repetir la Abla en 6/37 pts (16%), en 3 de ellos exitosamente.

**Conclusions:**

La ablación de arritmias del TS en pts muy sintomáticos y sin cardiopatía estructural es muy efectiva (81%) y segura Dada la anatomía y localización cercana a estructuras delicadas como el árbol coronario o el sistema de conducción, su ablación puede asociarse a complicaciones graves. En los pts en que fracasa la ablación lo más probable es que se trate de un foco intramuscular profundo, epicárdico o del summit del ventrículo izquierdo.

**Sección:**

Ciencia básica / traslacional

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**FIRST SCIENTIFIC SESSIONS**

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**November, 29 & 30**

**Cartagena 2018**

**Autores:**

Chamia Benchetrit , Heliodoro Rodriguez , Yolanda Abreu

**Ablation from the right atrium to achieve complete pulmonary vein isolation. Never leave the EP lab before ruling out the very uncommon right veins - right atrium connections**

**Background/Introduction:**

**Objectives:**

**Methods:**

**Results:**

**Conclusions:**

**Sección:**

Electrofisiología Clínica y Ablación con Catéter

**Tipo final:**



FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

Cartagena 2018

**Autores:**

Miguel Tejeda , Jhan Altamar , Diego Rodriguez , Juan Montenegro , Luis Saenz

**ABLATION OF A PREMATURE VENTRICULAR CONTRACTION IN A FALSE TENDON.**

**Background/Introduction:**

Premature ventricular complexes commonly originate from the outflow tracts. Other sites include the His-Purkinje system, the fascicles, valve rings and also endocavitary structures such as papillary muscles, false tendons and the moderating band.

**Objectives:**

We present the case of a 73-year-old male patient with a history of dilated heart disease and ejection fraction of 20%. Normal coronary angiography, negative Chagas serology and cardiac magnetic resonance with gadolinium without late enhancement. Electrocardiogram shows premature ventricular contractions with two morphologies and 24-hour holter revealed 20,000 premature ventricular contractions.

**Methods:**

Ablation is indicated and during the procedure the ablation catheter was located in the septal aspect of the subaortic portion in the left ventricular outflow tract where effective ablation is performed for premature ventricular contraction # 1. The premature ventricular contraction # 2 located in the area of greater precocity at the septal-mesial level of the left ventricle where the stimulation reproduces the 12/12 morphology of this extrasystole. From the use of intracardiac echocardiography, the incision of a false tendon is visualized. The ablation was performed on the septal incision of this structure ending with this extrasystole.

**Results:**

Disappearance of premature ventricular complexes and follow-up for 6 successful months without reappearance of this.

**Conclusions:**

The endocavitary structures have a dense fascicular network and the point of interface with the myocardium is an integral part in the genesis of the extrasystoles. The morphology of the premature beats related to this type of structure will depend on whether the exit of the ectopia is made by the fascicular system or by the surrounding myocardium. Intracardiac echocardiography is an essential tool in the management of this condition.

**Sección:**

Reportes del caso

**Tipo final:**

**Ficheros adjuntos:**

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FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

Ilaria Cazzoli , Silvia Guarguagli , Sabine Ernst

**Arrhythmia spectrum in patients with congenitally corrected transposition of the great arteries (ccTGA)**

**Background/Introduction:**

Supraventricular tachycardia, such as accessory pathways or dual atrioventricular nodal properties, but also atrial or ventricular tachycardia, can occur in patients with ccTGA. Catheter ablation is often a necessary therapeutic option.

**Objectives:**

To illustrate the variety of arrhythmias in ccTGA pts in a single centre between April 2010 and September 2017.

**Methods:**

A total of 10 consecutive pts [6F, mean age  $34 \pm 13.7$  yrs; 5(50%) had previous surgical correction; 4(40%) had previous device implantation; 6(60%) had in median 1 previous catheter ablation procedure; 2(20%) had moderate to severe systemic right ventricle (SRV) impairment and systemic valve regurgitation] underwent catheter ablation. All procedures were carried out with EAM and 3D image integration from CT (50%) or CMR scans (40%), plus RMN in half of cases. Femoral arterial access allowed retrograde access to the SRV in 3 pts (30%).

**Results:**

A total of 24 arrhythmias were inducible in 19 procedures [median 1/procedure (range 1-2), median CL 310ms (257-423)]. Atrial tachycardia (AT) were 14 (58.3), either focal (50%) or macro-reentry (50%) mostly from the RA (79%). In 8 procedures AVNRT was observed; interestingly, in a pt with "hamburger heart" it was due to a twin AV node, requiring 3 ablation attempts. In 2(8.3%) cases ablation of ventricular ectopics (VE) was performed. Lastly, one pt with previous device implantation and long-standing history of AT/AF required AV node ablation. Irrigated tip ablation was carried out with an acute success of 100%, no acute complications. The median procedure time was 177min (150-197) and the median fluoroscopy time 2.2min (0.4-10.8). During a mean F/U of 41months (17-60), 6 pts (50%) needed repeat procedures, mainly for recurrence of AVNRT, whereas 2(20%) had new onset of AT or AF.

**Conclusions:**

Arrhythmias in ccTGA-pts vary substantially and range from AVNRT to AT and VE. Despite the use of most advanced mapping and ablation techniques, repeat procedures might be needed in order to achieve ablation success.

**Sección:**

Electrofisiología Clínica y Ablación con Catéter

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**Cartagena 2018**

**Autores:**

Rita Ibarra Castillo , José Laso Bayas , Jorge Luis Arbaiza Simon , Mauricio Peralta Coronel

**Arrhythmia-induced cardiomyopathy: short-term recovery of the left ventricular ejection fraction as a predictor of complete normalization**

**Background/Introduction:**

The incidence of Arrhythmia-Induced Cardiomyopathy (AIC) is uncertain, but it is presumed to be between 8 and 34%. Its evolution to recovery is also not well known, however it has been suggested that an improvement of 25% of Left Ventricular Ejection Fraction (LVEF) during the first week after rhythm restoration, is an indicator of complete recovery

**Objectives:**

The aim of this study is to describe in our population the short-term outcome (one week) of LVEF after rhythm control and to show its maintenance in the medium term, as a predictor of complete recovery

**Methods:**

Between 2015 and 2018, 11 cases of AIC were studied. Nine were secondary to atrial flutter (AFIa), one to atrial fibrillation (AFib) and the last as a consequence of frequent ventricular extrasystole (VES). Seventy two percent were men, ages between 4 and 76 years. Of the cases of AFIa and AFib 100% had a ventricular response rate over 100 beats per minute; the patient with VES, had a 58% threshold of ectopic beats. Only one patient was taken to clinical treatment as rhythm control strategy; the rest were treated with radiofrequency ablation

**Results:**

All patients had moderate to severe systolic dysfunction prior to treatment; mean LVEF was 33% (18-44%). Of them, 63% were in NYHA class III-IV. One week after treatment, LVEF on average was 56% (46-69%) wich means an increase of 70%; and 100% of patients were in NYHA class I. Follow-up to a month, showed a LVEF of 63% and at 6 months, was around 61%. No differences were found between troponin value and NT-Pro-BNP before and after treatment. From the diagnosis/onset of symptoms, until treatment, there were a mean of 22 days

**Conclusions:**

The results in this small series suggest that AIC appropriately and early treated, is an entity with good prognosis and that short-term recovery of LVEF could be an indicator of full normalization in the medium term. The patients in this series are in continuous monitoring to determine their long-term outcome

**Sección:**

Electrofisiología Clínica y Ablación con Catéter

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**Cartagena 2018**

**Autores:**

Rita Ibarra Castillo , José Laso Bayas , Jorge Luis Arbaiza Simon

**Atrial tachycardia after transcatheter closure of atrial septal defects**

**Background/Introduction:**

Transcatheter closure (TC) of atrial septal defects (ASD) with septal occluders (SO) is an alternative to surgical management. Atrial tachyarrhythmias (AT) around surgical closure of ASD occur in up to 40% of patients but there are few reports of AT after TC and there are not recommendations for management.

**Objectives:**

We describe two patients with TC who developed AT with different mechanisms treated by radiofrequency ablation (RFA).

**Methods:**

The first is a 49 year-old male admitted for TC. Previously, he underwent RFA of an isthmus (IS) dependent atrial flutter. The SO implantation was performed successfully. In the immediate postoperative hours a regular tachycardia, 130 bpm, was reported. He was electrically cardioverted and maintained without antiarrhythmics. Two months later he developed an incessant AT. The second is a 19 year-old male undergoing TC four years ago. One year later, he complained of palpitations;  $\beta$ -blockers were ineffective.

**Results:**

In the first, the electroanatomic map of the right atrium showed a macroreentrant circuit with an IS between the crista terminalis and the SO. The transection of this IS changed the AT sequence and a new IS was found at the lower end of the crista that was ablated terminating with the arrhythmia. During one year follow-up, he remained asymptomatic. In the second, conventional mapping showed a focal AT with the earliest activation at the upper edge of the SO where RFA eliminated the arrhythmia. No recurrence during a six month follow-up.

**Conclusions:**

AT with a circuit surrounding atriotomy scars suitable for RFA are well known. TC is not associated with postoperative scars so we do not know exactly how the device is related to the mechanism of arrhythmias. We think that the presence of a metal implant predisposes to arrhythmia, in the first case it creates a barrier that favors the appearance of a critical IS for a macroreentrant AT, and in the second activates a focal source of tachycardia. Finally, we demonstrate that RFA after TC could be safe and effective.

**Sección:**

Reportes del caso

**Tipo final:**

**Ficheros adjuntos:**

[Patient #1: Electroanatomic map of the right atrium. Patient #2: Fluoroscopic images of septal occluder and ablation catheter.](#)



FIRST SCIENTIFIC SESSIONS

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**Cartagena 2018**

**Autores:**

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**Autonomic variations in Holter monitoring in resident physicians on guards**

**Background/Introduction:**

Medical residents are exposed to factors that make them a special population with risk for depression, burnout syndrome and stress. On the other hand, night work has been associated with adverse health events because predominance of sympathetic tone over the parasympathetic. This balance can be measured in a non-invasive and indirect way with a Holter (heart rate variability HRV).

**Objectives:**

To evaluate autonomic variation in Holter parameters before, during and after the night guards, in residents physicians.

**Methods:**

An observational, prospective study. The 48 hours were divided into 4 periods: Period 1 (24 to 12 hours before the guard); Period 2 (12-0 hours before the guard); Period 3 (0-12 hours of the guard); and Period 4 (12 hours) after guard.

**Results:**

52 residents with an average age of 28 years and 45 hours of registration were included. 59.6% were women, 77% were from public universities and clinical and surgical areas were included. The HRV was significantly reduced ( $p < 0.0001$ ) in period 2, with an additional reduction (less pronounced) at the start of the guard (period 3). There were differences in variations in first years of residence compared with the last year probably related with an adaptation phenomena.

**Conclusions:**

Residents who perform night guards have reduced heart rate variability during periods 2 and 3, being more evident in period 2 (anticipation phenomenon), this change in variability is due to decreased parasympathetic activity but oscillates within the range of normality.

**Sección:**

Electrocardiografía / Holter monitoring / Syncope

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**Cartagena 2018**

**Autores:**

Carlos Tapias , Richard Soto , Diego Rodriguez , Fermin Garcia , Luis Saenz

**Biatrial flutter in status postmaze.**

**Background/Introduction:**

One of the most frequent manifestations of the recurrence of arrhythmias subsequent maze surgery are the atrial flutter, is common to document the circuit near de atrial incisions. We describe a complex circuit of an atrial flutter posterior a maze surgery

**Objectives:**

To describe 1 case of successful ablation of a biatrial flutter from the cavotricuspid isthmus.

**Methods:**

N/A

**Results:**

A 53-year-old woman was referred to our hospital for palpitations with evidence of an atypical atrial flutter after following mitral valve replacement and maze surgery. Under general anesthesia, bilateral femoral vascular accesses were obtained. At the beginning of the procedure an AFL with a cycle length of 400 msec was documented, entrainment map was performed from the left and right atrial with PPI close to the cycle length of the arrhythmia in all the stimulation sites (fig 1A). Activation and voltage maps were made in atrial flutter documenting bidirectional blockage in the pulmonary veins, posterior wall and registry of endocardic scar in the anterior wall of the left atrium (fig 1A-B), and with 92% of cycle length of the arrhythmia recorded in both atria confirming the diagnosis of biatrial flutter (fig 1A). Despite the presence of an endocardic scar on the anterior wall of the left atrium, local capture areas were recorded, suggesting an epicardial conduction gap, probably the Bachmann's bundle. Given that both atria were part of the circuit, it was decided to perform ablation based on a simple anatomical substrate, with a line in the cavotricuspid isthmus (fig 1C). After ablation, bidirectional blockade is documented through the line without reinduction of the arrhythmia

**Conclusions:**

After surgical maze, complex circuit can be observed being part of atrial flutter, understanding the anatomy and mechanism may allow us to make a catheter-based treatment effective

**Sección:**

Electrofisiología Clínica y Ablación con Catéter

**Tipo final:**

**Ficheros adjuntos:**

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FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

Laura Portillo

## Brugada Syndrome Registry

**Background/Introduction:**

Brugada syndrome (BrS) is an inherited arrhythmogenic disease that presents with a characteristic ECG (J-point and coved ST-segment elevation in the right precordial leads (RPL), "type 1 BrS pattern") and a tendency to develop syncope or sudden death (SD) from ventricular fibrillation. Type 2 ECG, called saddleback pattern must be confirmed by drug test. (Ajmaline or Flecainide)  
Syncope, arrhythmias or SD can be the initial presentation.

**Objectives:**

To know ECG, clinical presentation and evolution of Brugada Syndrome in our population

**Methods:**

Pilot, consecutive registry made by EP department of a public Hospital between 2016 and 2018. 73 suspected BrS patients were analyzed (ECG, symptoms, evolution). ECG including high precordial leads, defined four groups: G1) Type 1 G2) Type 2, G3) suggestive (signs like rSR' in RPL,  $\beta^{\circ} > 60^{\circ}$  G4) Normal. 400 mg Oral Flecainide test (FT) was performed (with accordance), ECG was performed at 1-2 hs later. The positive cases was stratified and followed-up

**Results:**

The middle age was 36 years old (5- 65), 57% female. The 39.7 % of the patients (N 29) had precedents of familiar SD. 68 FT were performed. 49 % of them were positive, 55 % (N20) women. 5 patients (6%) belonged to Group 1, 30,1 % (N22) to 2, 28.7 % (N21) to Group 3 and 32.8 % (N24) to Group 4. Of those positive FT, 9 were of Group 2 (25 %) , 18 (50 %) of the Group 3 and 9 (29%) were of Group 4.  
4 % (N3) of the patients had precedents of convalescent Sudden Death, one of the G1, one of G4 and the other of G3. Patients with familiar Precedents of SD, 51 % (N15) of the FT were positive. 40 % was of the Group 4, 6 % Group 2 (N1), while 53 % to Group 3. 20% (N14) had syncope. 60 % FT was positive (N9) associated with Group 2 22.2 %, Group 3 55.5 % and Group 4 22.2 %.  
18.9 % belonged to high risk of SD.

**Conclusions:**

In patients with familiar SCD history, Flecainide Test should be performed when there is no clear diagnosis  
Group 3 had more positive cases than Group 2 (85% vs 33.3%)  
18.9 % BrS patients needed CDI.

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Electrofisiología Clínica y Ablación con Catéter

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**Cartagena 2018**

**Autores:**

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**Cardiac pacing degree after definitive pacemaker implant according to indication in patients taken to TAVR: Panorama of the November 20th Medical Center.**

**Background/Introduction:**

Transcatheter aortic valve replacement (TAVR) related conduction disturbances, mainly new-onset left bundle-branch block (LBBB) and high-degree atrioventricular block (HAVB) requiring permanent pacemaker implantation (PPM) remain the most common complication of this procedure. The rates of PPM after TAVR vary from 2% to 51%. The main patient and procedural factors associated with new-onset LBBB are implantation of a Medtronic Corevalve, implantation depth within the left ventricular outflow tract (LVOT) and overexpansion of native aortic annulus; the main predictors of PPM implantation after TAVR are baseline right bundle-branch block (RBBB) and first-degree atrioventricular block.

**Objectives:**

Establish the cardiac pacing degree after PPM in patients taken to TAVR according to indication: LBBB or HAVB and the prosthesis type.

**Methods:**

Retrospective analysis of patients taken to TAVR from April 2015 to April 2018 to whom was implanted PPM secondary to LBBB or HAVB. Three-year follow-up.

**Results:**

PPM was implanted in 17 patients (74±9 years-old) with NYHA functional class II-III; the LVEF was 56±15% and the most used prosthesis was Corevalve (35.2%). Principal indication for PPM was new-onset LBBB (41.15%), indication for HAVB and new-onset LBBB+HAVB was 29.4% for each. The cardiac pacing was 71±42%, being higher in HAVB (99.2%) than in new-onset LBBB and LBBB+HAVB (72.4% and 52%, respectively). Three patients with new-onset LBBB (17.6%) progress to HAVB requiring a higher cardiac pacing (98%); nevertheless, two patients with LBBB+HAVB presented late recovery with pacing reduction (<1%).

**Conclusions:**

Cardiac pacing in patients with PPM after TAVR with indication for HAVB and LBBB+HAVB is higher compared with only new-onset LBBB indication. Nonetheless cardiac pacing in new-onset LBBB is relatively high (72%), so the possibility of HAVB progression or transitory HAVB is high. We noted improvement or progression in the conduction disturbances, so it is necessary to determine prognostic factors.

**Sección:**

Dispositivos Electrónicos Implantables Cardiovasculares

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FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

Miguel Tejada , Jhonatan Benavides , Diego Rodriguez

**Cardiac resynchronization in patients with subcutaneous cardioverter defibrillator implant**

**Background/Introduction:**

The prevention of sudden death is a fundamental pillar in the treatment of multiple heart diseases. The subcutaneous implantation of cardio-defibrillators mainly in patients with anatomical alterations, in hemodialysis or with a history of endovascular infectious processes. The change in the vectors of ventricular stimulation can affect the proper functioning of the subcutaneous cardio defibrillator, causing an alteration in the discrimination of the potentially deadly arrhythmic events.

**Objectives:**

To present the case of a patient with subcutaneous cardioverter defibrillator and cardiac resynchronization therapy with adequate functioning of the devices.

**Methods:**

An 81-year-old male patient with ischemic heart disease, ejection fraction of 15% to 20%, 11 years ago a dual-chamber cardioverter-defibrillator was implanted for the primary prevention of sudden cardiac death. He then presented bacterial endocarditis associated with the device, so a complete explant was made and a subcutaneous cardio-defibrillator implant was decided. A months later I had a complete atrioventricular block, so it was decided to start cardioresynchronization therapy.

**Results:**

The "screening for EMBLEM™ S-ICD" during the sinus rhythm was only surpassed in the secondary vector and at the time of the resynchronization the screening was optimal for the three vectors making it clear that cardiac resynchronization therapy could be a safe therapy in the patients with previous implantation of subcutaneous cardioverter-defibrillator.

**Conclusions:**

The subcutaneous cardioverter-defibrillator is a useful therapy in patients selected for primary and secondary prevention of sudden death. The requirement for ventricular pacing therapy after implanting the device theoretically offers possible negative interactions in QRS-T discrimination. We present a clinical case in which cardiac resynchronization did not present difficulties in the functioning of the subcutaneous cardioverter-defibrillator and improved the analysis of the QRS-T by it.

**Sección:**

Reportes del caso

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FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

Alonso Rafael Arroyo Castillo , Carlos Tapias , Miguel Tejada , Fermín Garcia , Diego Rodriguez , Luis Carlos Saenz

**Catheter Ablation of Ventricular Arrhythmias With Half-Normal Saline Open-Irrigation**

**Background/Introduction:**

Failures of radiofrequency catheter ablation (RCA) to treat ventricular arrhythmias (VAs) are mostly related with difficulty to create optimal damage of the culprit myocardium. Decreasing the irrigant ionic concentration during irrigated radiofrequency catheter ablation (RCA) has been proposed to produce larger and deeper myocardial lesions.

**Objectives:**

To describe our experience in using half normal saline (HNS) for open-irrigated RCA of VAs.

**Methods:**

A retrospective analysis of the VA ablations performed with HNS at one center between 2016-2018 is reported. Patients and procedural details were collected for 14 procedures.

**Results:**

HNS open-irrigated RCA was used in 9 PVCs and 5 VTs. HNS was indicated after failed standard ablation in 6 and as a first choice in 8. The left ventricular ejection fraction (LVEF) was 45 +/- 30% and endocardial approach was performed in 8 cases and epicardial in 6 (Panel A), Regions targeted for ablation are shown in Panel B. Acute success (PVC suppression or VT non-inducibility with PES) was evaluated and achieved in 14/14 cases, with long-term recurrence in 1/14 over 3,5 +/- 2,5 months (93% success rate). There were no ablation-related complications or significant changes on electrolytes after the procedure. Steam pop was observed by ICE in 2 cases with no related consequences.

**Conclusions:**

Decreasing the irrigant ionic concentration during open-irrigated radiofrequency catheter ablation is feasible and safe. The acute and long-term high success rate reported in our series suggests HNS irrigation could has a role to ablate VAs that has to be tested in larger studies.

**Sección:**

Electrofisiología Clínica y Ablación con Catéter

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November, 29 & 30

**Cartagena 2018**

**Autores:**  
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## **Catheter Ablation Versus Medical Therapy for Atrial Fibrillation in Heart Failure with Reduced Ejection Fraction: A Meta-Analysis of Randomized Controlled Trials**

### **Background/Introduction:**

Previous randomized controlled trials (RCTs) showed similar outcomes in patients with atrial fibrillation (AF) and heart failure with reduced ejection fraction (HFrEF) treated with anti-arrhythmic drugs (AAD) compared to rate control therapy.

### **Objectives:**

We sought to evaluate whether catheter ablation is superior to medical therapy in patients with AF and HFrEF.

### **Methods:**

We searched electronic databases for all RCTs that compared catheter ablation and medical therapy (with or without use of AAD). We used random-effects model to summarize the studies. The primary end-point was all-cause mortality. Secondary outcomes included heart failure-related hospitalizations, change in left ventricular ejection fraction (LVEF) and change in six-minute walk distance (6MWT).

### **Results:**

We retrieved and summarized 7 randomized controlled trials, enrolling 856 patients (429 in the catheter ablation arm and 427 in the medical therapy arm). Compared with medical therapy, AF catheter ablation was associated with a significant reduction in mortality (risk ratio 0.50; 95% confidence interval [CI]: 0.34 to 0.54;  $P=0.0005$ ) and heart failure-related hospitalizations (risk ratio 0.56; 95% CI: 0.44 to 0.71;  $P < 0.0001$ ). Furthermore, AF catheter ablation led to significant improvements in LVEF (weighted mean difference, 7.48; 95% CI: 3.71 to 11.26;  $P < 0.0001$ ) and 6MWT performance (weighted mean difference, 30.15; 95% CI: 10.47 to 49.84;  $P < 0.0001$ ).

### **Conclusions:**

Compared to medical therapy, including use of AAD, catheter ablation for AF was associated with a significant reduction in mortality and heart failure-related hospitalizations as well as an improvement in LVEF and functional status in patients with heart failure with reduced ejection fraction.

### **Sección:**

Electrofisiología Clínica y Ablación con Catéter

### **Tipo final:**



FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

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**Characteristics, complications and survival of patients with cardiac resynchronization-defibrillator therapy in a Latin-American cohort**

**Background/Introduction:**

Cardiac resynchronization-defibrillator therapy (CRT-D) is associated with improved survival in patients with heart failure, leading to a progressive increase in the number of patients receiving these devices.

**Objectives:**

To describe the clinical characteristics, complications and survival of patients with CRT-D.

**Methods:**

Patients with a CRT-D device evaluated between may 2013 and may 2016 were included. Office follow-ups were scheduled every six months; demographic and clinical data were obtained.

**Results:**

A total of 124 patients (age  $64.7 \pm 10.2$ ; 62.4% male) were included in the present study. Ischemic cardiomyopathy (ICM) was present in 39.2% of patients; mean left ventricular ejection fraction was  $22.4 \pm 6.4\%$  (table 1). Use of guideline-recommended medical therapy was high (betablockers: 93.6%; angiotensin conversion inhibitors/angiotensin receptor blockers: 89.6%; spironolactone 80.8%). Patients with non-ischemic cardiomyopathy (NICM) were more likely to be female (47.4% vs 22.4%;  $p= 0.004$ ) and younger ( $62.17 \pm 10.55$  vs  $68.84 \pm 8.35$  years;  $p= 0.004$ ) than patients with ICM, while patients with ICM were more likely to be hypertensive (89.8% vs 64.5%;  $p= 0.01$ ) or diabetic (34.7% vs 18.4%;  $p=0.033$ ). During a mean follow up of  $28 \pm 4$  months, 41 patients (33.6%) presented with an adverse event, including high pacing thresholds (16%) need for an epicardial left ventricular lead (12%) and death (10.4%). Mortality was significantly higher in patients with ICM than in patients with NICM (20.4% vs 3.9%;  $p= 0.004$ ) and in hypertensive patients ( $p= 0.017$ ).

**Conclusions:**

In this Latin-American cohort, mortality and complications were similar to those reported in other regions. A high adherence to guideline-recommended medical therapy could explain these similar results.

**Sección:**

Dispositivos Electrónicos Implantables Cardiovasculares

**Tipo final:**

**Ficheros adjuntos:**

[tabla crt.png](#)



FIRST SCIENTIFIC SESSIONS

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**Cartagena 2018**

**Autores:**

Jhonattan Benavides , Carlos Andres Tapias , Oscar M. Pérez-Fernández , Hector M. Medina , Luis Carlos Saenz , Diego Rodriguez

**Comparison of ventricular volumes and ejection fraction quantified by conventional echocardiography and cardiac magnetic resonance for primary prevention of sudden cardiac death**

**Background/Introduction:**

Factors that determine need for primary prevention of sudden cardiac death (SCD) with implantable cardioverter-defibrillator (ICD) include left ventricular ejection fraction (LVEF) and functional class. The measurement of ventricular volumes and LVEF in previous trials was performed with echocardiography (ECHO) and ventriculography. However, these measurements have an inter and intra-observer variability ranging from 5-10% resulting in challenging decision-making in patients with borderline values. Cardiac magnetic resonance (cMRI) has less variability in ventricular volume measurements; however, there is no data of ventricular volumes and LVEF obtained with cMRI to indicate need for ICD.

**Objectives:**

This study compares the ventricular volume measurements and LVEF by ECHO and cMRI in patients with an indication for ICD for primary prevention

**Methods:**

A retrospective analysis of consecutive patients who had ICD for primary prevention of SCD was done. ECHO and cMRI were performed in all patients. Means and standard deviations (SD) were used for continuous and percentages for categorical values, respectively; to compare cMRI vs ECHO characteristics, a T-student test was performed for mean differences

**Results:**

A total of 129 patients were included. Mean age was 56 years and 68.2% were male. Most frequent indications for ICD were dilated (33.3%), Ischemic (27.9%) and chagasic (12.4%) cardiomyopathy. ICD implanted were dual chamber (44.2%), single chamber (14.7%) and cardiac resynchronization therapy (31%). cMRI and ECHO characteristics of patients with ICD therapy for primary prevention of CSD are presented in Table 1

**Conclusions:**

No differences were found in LVEF between Echo and cMRI inpatients going for ICD for SCD primary prevention. However, the EDVI's noticed in cMRI were significantly higher compared to those found on ECHO, suggesting underestimation of the true value by ECHO. Further testing is needed to determine if ventricular sizes are a prognostic indicator for hard outcomes in this patient population

**Sección:**

Dispositivos Electrónicos Implantables Cardiovasculares

**Tipo final:**

**Ficheros adjuntos:**

[tabla\\_1.jpg](#)



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**Cartagena 2018**

**Autores:**

Lázaro Hernandez Jimenez , Brenda Janette Mendoza Ramírez , Cesar Gerardo Galván Vargas , Angel Leovigildo Alberto Delgado , Danny Noel Rapalo Carbajal

**Cryoablation of the accessory pathway parahissian from right atrial**

**Background/Introduction:**

It's a male 25 years old without diseases, military parachutist, who refers events vision loss transiently during jumps. Referred by compatible EKG with ventricular preexcitation of Anteroseptal localization without further clinical, normal laboratories, normal echocardiogram, stress test normal conduction sinus rate of 160 bpm, 24 hours Holter unchanged

**Objectives:**

Perform electrophysiological study (EPS) with cryoablation catheter and electroanatomical navigation system Ensite to accessory pathway ablation

**Methods:**

EPS was done with navigation system Ensite and 4 catheters a decapolar in distal coronary sinus, a four-pole catheters in Apex Right and zone of His and cryoablation catheter for mapping saw accessory in parahissian area; non-decreasing concentric conduction is detected that demonstrating the earliest accessory atrial pathway recorded in the His, in relation to coronary sinus, right atrium and tricuspid ring, so it's done cryoablation criomapping from the ventricular insertion antegrade conduction of the accessory pathway presenting blockage of the normal AV conduction, so during the orthodromic induced tachycardia mapping of the atrial activation that registers an early atrium at a point located more posterior from the His record

**Results:**

Successful ablation of the accessory pathway parahissian was performed from atrial insertion. EKG after ablation with traumatic RBBB without recurrence to 11 months.

**Conclusions:**

In patients with parahissian accessory pathways and who confirm the indication to perform resolute treatment during the EPS, cryoablation and the use of electroanatomical navigation systems should be considered in order to reduce the risk of irreversible blockage of intrinsic conduction AV and increase the success of ablation of accessory pathway, which has an impact on the survival, quality of life. Additionally, it is recommended to seek atrial insertion of the accessory pathway when ablation of the ventricular insertion is unsuccessful or present a block of normal AV conduction

**Sección:**

Electrofisiología Clínica y Ablación con Catéter

**Tipo final:**

**Ficheros adjuntos:**

[end of orthodromic tachycardia \(a\) and absence of preexcitation \(b\) during from right atrial .jpeg copy1.jpg](#)



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November, 29 & 30

Cartagena 2018

**Autores:**

Alonso Rafael Arroyo Castillo , Carlos Tapias , Johanna Maestre , Miguel Tejada , Fermín García , Luis Carlos Saenz , Diego Rodríguez

**Description of the Syncope Risk Scores and Clinical Characteristics from Patients Taken to Electrophysiological Study for Suspected Arrhythmogenicity**

**Background/Introduction:**

Syncope due to arrhythmias, debuts with higher mortality than syncope from another cause, therefore, given the need to discern between them, many clinical risk factors and syncope risk scores have been identified, thus, patients with high scores, encourage the practice of continuous rhythm monitoring and even invasive electrophysiological study (EPS) in order to rule out arrhythmic cause.

**Objectives:**

To describe the clinical characteristics most related to syncope due to arrhythmias and the role of four risk scores, in terms of the initial approach in a group of patients taken to EPS for suspected arrhythmogenicity.

**Methods:**

A descriptive and retrospective study, where we described the clinical characteristics and four risk scales scores for cardiogenic syncope (CS), OESIL(Osservatorio Epidemiologico sulla Sincope nell Lazio), Evaluation of Guidelines of syncope (EGSYS), San Francisco and Canadian syncope risk score(CSRS), from patients with and without final diagnosis of syncope for arrhythmias, taken to EPS in the years 2013 to 2017 in a cardiovascular hospital, using means of frequencies, percentages and medium ranges, and a bivariate analysis was carried out to explore its distribution in patients with and without diagnostic confirmation.

**Results:**

Were included, 26 patients. The median age was 63 years, 57.7% were men, abnormal EPS was found in 5 cases (19.2%), 2(40%) by ventricular tachycardia, 2(40%) by prolonged His-ventricle interval and 1(20%) due to sinus dysfunction. The CS caused by arrhythmias diagnosed through EPS was more frequent in men who presented bradycardia or syncope during exercise ( $p < 0.05$ ). In correlation with other scales, EGSYS had a significantly higher score in patients with abnormal EPS, compared to patients with normal EPS (100% vs. 47.6%) with  $p = 0.033$ .

**Conclusions:**

Our study suggests that patients with syncope during exercise, associated with bradycardia or a high score on the EGSYS scale, could be candidates for EPS as a diagnostic method for suspected arrhythmic syncope.

**Sección:**

Electrocardiografía / Holter monitoring / Syncope

**Tipo final:**

**Ficheros adjuntos:**

[2\\_tables.docx](#)



FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

Rodolfo Oyarzun , Lorenzo Naranjo , Ruben Aguayo

## **DIEZ AÑOS DE IMPLANTE DE MARCAPASOS EN EL SISTEMA PUBLICO CHILENO**

**Background/Introduction:**

Hasta mediados del año 2005 en los Hospitales del Sistema Nacional de Salud (SNS) se implantaban solo marcapasos (MP) unicamerales, año en el cual se incorpora el implante de MP al PLAN AUGE. Esto garantiza el implante de MP ya sea unicameral (VVI) o bicameral (DDD) a todo paciente que tenga indicación, ya sea en el Sistema Público o Privado de Salud.

**Objectives:**

Analizar la evolución en la tasa de implantes y del tipo de MP implantado, VVI versus DDD en los primeros 10 años de GES en el Sistema Público Chileno.

**Methods:**

**Results:**

El año 2005 en muy pocos hospitales del SNS habían médicos capacitados para implantar MP DDD ya que solo se implantaban MP VVI con una tasa de 140/millón de habitantes. En la Tabla N<sup>o</sup> 1 se observa la tasa de primo implantes (primera fila) y el total de implantes, que incluye a los recambios. En la Tabla N<sup>o</sup> 2 se observa en la primera fila el porcentaje de MP VVI y en la segunda de MP DDD.

**Conclusions:**

El Plan AUGE de marcapasos ha significado un gran avance en el SNS para la atención de pacientes con enfermedad del sistema excito conductor. Se pasó de una tasa de implante de 140/millón de habitantes el año 2004 a 291/millón de habitantes el año 2016. A su vez, el año 2014 el 100% de los marcapasos implantados eran VVI versus 42% VVI y 58% DDD el año 2016

**Sección:**

Ciencia básica / traslacional

**Tipo final:**

**Ficheros adjuntos:**

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FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

Felipe Cañas Orduz , Pablo Eduardo Perafán , Luis Fernando Pava

**Electric storm treated promptly with oral propranolol plus intravenous amiodarone**

**Background/Introduction:**

The term “electrical storm” describes a state of electrical instability of the heart characterized by recurrent episodes of ventricular tachycardia (VT) or ventricular fibrillation (VF) in a short period of time. Recently it has been reported the efficacy of oral propranolol plus IV amiodarone over oral metoprolol plus IV amiodarone in electric storm.

**Objectives:**

We report a case of ES safely and effectively treated with oral propranolol plus IV amiodarone

**Methods:**

A 69-year-old male consulted by an episode of syncope with soft tissue head trauma preceded by rapid palpitations. He had suffered two myocardial infarctions, the first one year and the last one month before admission. His functional class was NYHA II – III. He was on dual antiplatelet therapy, carvedilol 12.5mg bid, spironolactone 25 od, enalapril 5mg bid, rosuvastatin 40m od and oral nitrates. On admission he was alert and an immediate ECG was performed showing frequent VT clusters (Figure 1). His blood pressure was 122/59 mmHg and he has no congestion or hypoperfusion clinical signs. A hematoma on his forehead was noted. His neurological examination was unremarkable. A trans thoracic echocardiography was performed, were a dilated left atrium and ventricle, a LVEF 27%, and a functional moderate mitral regurgitation were noted along with hypokinetic inferior, inferolateral and lateral walls

**Results:**

He was admitted to ICU unit and oral propranolol 40mg plus intravenous amiodarone (rapid infusion rate of 30 mg/min over 10 min, followed by continuous infusion of 1mg/min) was administered. At 30 min, the patient reached electrical stability (Figure 1).

**Conclusions:**

We report a case of oral propranolol with intravenous amiodarone as a safe and effective treatment. Propranolol has been linked with membrane stabilization properties and has the potential to act on the central nervous system by blocking central and prejunctional receptors. Large cohort studies comparing the efficacy of selective and nonselective b-adrenergic blockade on ES are missing

**Sección:**

Reportes del caso

**Tipo final:**

**Ficheros adjuntos:**

[Figure 1. The initial ECG showed ventricular tachycardia \(VT\). Screenshots of bedside monitor are presented: the first two lines show VT clusters at the time of initiation of oral propranolol plus intravenous amiodarone. 36 minutes later the patient reached and maintained electrical stability.](#)



FIRST SCIENTIFIC SESSIONS

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**Cartagena 2018**

**Autores:**

Carlos Tapias , Diego Rodriguez , Fermin Garcia , Luis Saenz

**Ethanol Infusion in the Vein of Marshall as an adjunctive therapy for ablation of the mitral isthmus**

**Background/Introduction:**

One of the most frequent manifestations of the recurrence of arrhythmias subsequent to PVI is the perimitral flutter. The most common strategy to deal with mitral flutter is to ablate and obtain bidirectional block in the mitral isthmus. In most cases of ablation of the posterior mitral isthmus, an epicardial approach is necessary to achieve transmural lesions; however, ablation in the coronary sinus is sometimes limited by high impedances or proximity to coronary arteries. Ablation with alcohol in the vein of Marshall has previously been shown to be a safe intervention

**Objectives:**

To describe 1 case of successful ablation of an epicardial gap in the mitral isthmus through the vein of Marshall (VOM) using ethanol.

**Methods:**

N/A

**Results:**

A 74 YO woman was referred for palpitations with evidence of an atypical AFL after 3 prior atrial ablation procedures. Under general anesthesia, bilateral femoral and right jugular vascular accesses were obtained. Using a three-dimensional mapping system, a voltage map was made in sinus rhythm, pulmonary and posterior wall electrical isolation and evidence of prior ablation voltage zone in the posterior mitral isthmus without bidirectional block (fig1A). Using a long sheath and diagnostic catheter, the VOM is cannulated and guide wire was advanced and connected to obtain unipolar signals. During differential stimulation maneuvers, a gap is observed through the mitral isthmus of epicardial predominance (fig1B). During continuous atrial pacing from the left atrial appendage, 98% ethanol injection (fig1C) was performed in the VOM, immediately observing blockage in the mitral isthmus and delayed epicardial activation(fig 1E-D). After this, a programmed pacing protocol is performed without induction of arrhythmias. The patient remained arrhythmia free at 12 months of follow-up

**Conclusions:**

The ablation of the mitral isthmus with ethanol through the VOM may be a safe option in patients with perimitral flutter. This intervention requires RCT to demonstrate its long-term efficacy

**Sección:**

Electrofisiología Clínica y Ablación con Catéter

**Tipo final:**

**Ficheros adjuntos:**

[figura\\_1\\_copy2.jpg](#)



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November, 29 & 30

**Cartagena 2018**

**Autores:**

Ilaria Cazzoli , Silvia Guarguagli , Joshua Parslow , Sabine Ernst

**Expect the unexpected: How to access the left atrium when most ways are precluded**

**Background/Introduction:**

Repeat cardiac surgery in congenital heart disease (CHD) is challenging. Arrhythmia is a common long-term problem and post-surgical "obstacles" may hinder ablative procedures.

**Objectives:**

We report on a 29yo lady who underwent at 2yrs of age an unroofed CS and ASD repair, connection of persistent left to the right SVC, and mitral valve (MV) valvotomy. She later had MV replacement (MVR) and re-do, due to endocarditis, with a metallic graft in suprannular position above the LAA. Due to recurrent atrial arrhythmia despite optimal anti-arrhythmic therapy, she was referred for ablation.

**Methods:**

3D imaging showed a giant LAA in continuity with the LV. Right jugular and right subclavian venous access were chosen due to bilaterally occluded femoral veins. Retrograde access to the LA was precluded by the MVR. Aorta and RA FAM allowed 3D image merge and showed RA and LAA bystander activation. An attempt at crossing the heavily calcified interatrial patch with a 6F paediatric sheath resulted in inability to advance into the LA, and an exchange manoeuvre to a steerable sheath failed. The case was terminated and a second procedure was scheduled.

**Results:**

During the second procedure a trans-jugular TSP was carried out under TOE guidance using a RF needle and an 8.5F SL1 sheath with visualisation of the RF needle tip, followed by ablation using remote magnetic navigation. Due to the variable CL of the atrial activation PVI was performed. The arrhythmia was then terminated with DCCV into sinus bradycardia. The pt was then discharged on bisoprolol. Over a follow up of > 7months she had recurrence of AT/AF, therefore another catheter ablation was performed.

**Conclusions:**

Ablation in CHD has to tackle surgical sequels, and surgeons should consider preserving anatomical access to allow future invasive arrhythmia management. Arrhythmia ablation success after complex CHD repair can be only achieved by an expert team using a combination of advanced access, mapping and ablative techniques. However, multiple attempts can be required.

**Sección:**

Reportes del caso

**Tipo final:**

**Ficheros adjuntos:**

[picturelahrs2018.jpg](#)



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November, 29 & 30

**Cartagena 2018**

**Autores:**

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## EXPERIENCIA EN LA ABLACION DE PACIENTES CON TAQUICARDIA AURICULAR MONOFOCAL

**Background/Introduction:**

La taquicardia auricular (TA) monofocal es una arritmia supraventricular que generalmente se presenta en pacientes (pts) sin cardiopatía. Puede presentarse en forma paroxística o incesante llevando a taquicardiomiopatía e insuficiencia cardiaca. No es raro que algunas TA se confundan durante años con taquicardia sinusal, esto sucede cuando están muy cerca del nódulo sinusal, retrasando así su tratamiento.

**Objectives:**

Analizar nuestra experiencia en la ablación de pts con TA

**Methods:**

Se realizó un análisis retrospectivo de 51 pts ablacionados (abla) mediante radiofrecuencia, 35/52 mujeres (69 %), edad promedio de  $46 \pm 19.9$  (16-81 años). En 34 pts (67 %) se utilizó mapeo electroanatómico Carto 3.

**Results:**

Los pts no presentaron cardiopatía estructural, la fracción de eyección del VI fue de  $58 \pm 15.6$  (21-72%). Éxito inicial se logró en 42 pts (82%), en 6 pts se repitió exitosamente la abla, logrando un éxito global en 48/51 pts, (94%). En 8 pts la TA tenía una localización parahisiana, en 4 la ablación fue exitosa, en 1 pte fracasó, en otro fue parcialmente exitosa y en 2 no se intentó. TA incesante presentaron 14 pts (27%), 6 de ellos con taquicardiomiopatía (FEVI  $30.2 \pm 9.5\%$ ), todos ellos fueron ablacionados exitosamente con normalización de la función ventricular. En las dos pts embarazadas con TA incesante y taquicardiomiopatía, fue necesario interrumpir precozmente el embarazo con ablación exitosa de su arritmia. En ambos casos los recién nacidos nacieron sin problemas. Un pte presentó un derrame pericárdico que requirió drenaje. Durante el seguimiento de  $5.57 \pm 3.8$  años (0.2-13.5 años) se presentaron 12 recurrencias, 11 de ellos fueron ablacionados nuevamente en forma exitosa. Tres pts fallecieron a los  $4.25 \pm 4.7$  años, sin relación a su arritmia.

**Conclusions:**

La TA es más frecuente en mujeres (69%) y predominantemente de aurícula derecha (69%). Puede ser una arritmia muy sintomática e invalidante, en su forma incesante puede llevar a insuficiencia cardiaca. Durante el embarazo puede afectar severamente a la madre y al feto. En nuestra experiencia el 90% de los pts se ablacionaron exitosamente y en forma muy segura.

**Sección:**

Ciencia básica / traslacional

**Tipo final:**

**Ficheros adjuntos:**

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FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**  
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## EXPERIENCIA INSTITUCIONAL EN EL TRATAMIENTO DE TAQUICARDIA VENTRICULAR FASCICULAR

### Background/Introduction:

La taquicardia ventricular fascicular (TVF) es el tipo de taquicardia ventricular idiopática (TVI) más frecuente del ventrículo izquierdo (VI) y representa el 10-15% de todas las TVI. Si bien su pronóstico habitualmente es benigno, puede llevar a un deterioro significativo en la funcionalidad del paciente, situación en donde se recomienda el tratamiento con ablación. Describimos la experiencia institucional registrada entre el año 2005 y 2018 para el manejo de esta entidad.

### Objetivos:

### Methods:

Se registran los pacientes con diagnóstico de TVF del Instituto Nacional del Torax, entre los años 2005 a 2018. Se consideran datos demográficos generales, cuadro clínico inicial y morfología de la TV al electrocardiograma (ECG). En cuanto a las ablaciones se describen el número promedio por pacientes, porcentaje de éxito, complicaciones y seguimiento posterior a la primera ablación. Mediante test exacto de Fisher se compara la tasa de éxito de terapia entre el estudio electrofisiológico (EEF) convencional y el mapeo electroanatómico (MEA).

### Results:

Se registra un total de 22 pacientes con TVF, edad promedio 39 años (14-69), 54.5% hombres. Un 23 % (5 pacientes) presentaba cardiopatía preexistente (Gráfico 1 y 2). 23 % (5 pacientes) fueron derivados por sospecha de taquicardia paroxística supraventricular y 13% (3 pacientes) como TV incesante, en estos últimos todos presentan clase funcional 3 al ingreso. El hallazgo más frecuente en ECG fue TV con bloqueo completo de rama derecha y hemibloqueo izquierdo anterior (83%). En 18 casos (82 %) el origen de la TVF fue posteroseptal. Se realizaron entre 1 y 2 ablaciones en 91% (20 pacientes). Éxito general de un 91 %, presentando una mayor tasa de éxito la ablación con MEA (74 % v/s 17%  $p < 0.0001$ ) (Gráfico 3). Se registró solo dos complicaciones mayores (tafonamiento pericárdico y trombosis venosa profunda). Seguimiento a largo plazo en promedio 37.7 meses (3-68) en 13 pacientes. A la fecha actual no se registran recurrencias de TVF en ningún paciente y sólo se registra un caso de muerte por causa no cardiovascular.

### Conclusions:

Según la experiencia aportada, el tratamiento de la TVF se ha realizado con un bajo número de complicaciones y con una alta tasa de éxito. Observamos también que el uso de MEA para la ablación se asoció a mejores resultados en comparación al EEF convencional.

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1. Heart Views. 2017 Jul-Sep; 18(3): 83–87. doi: 10.4103/HEARTVIEWS.HEARTVIEWS\_145\_15 Alahmad, et al.

### Sección:

Ciencia básica / traslacional

### Tipo final:

### Ficheros adjuntos:

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FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

Alvaro Loza

**FRAGMENTED QRS COMPLEX AS A PREDICTOR OF RIGHT VENTRICULAR DYSFUNCTION AND ARRHYTHMIAS ON CONGENITAL HEART DISEASE.**

**Background/Introduction:**

QRS complex fragmentation QRScF suggests a non-homogeneity of ventricular repolarization and it has been associated to myocardial scar as a predictor of ventricular arrhythmia VA on general population. There are not too many investigations available about QRScF associated to congenital heart disease CHD.

**Objectives:**

Establish the correlation of QRScF with right ventricular systolic function RVSF on CHD patients. Determination of predictive value of QRScF to develop right ventricular dysfunction RVD and VA.

**Methods:**

Analytical, prospective and longitudinal study on patients with CHD at William Soler Heart Institute HABANA CUBA. In all patients ECG was done. The QRScF was defined as the presence of 2 or more notching over R and/or S waves at 2 or more contiguous leads, Holter was performed in all patients, also the RVSF was measured.

**Results:**

135 patients were included with age average 16.9 +/- 3.7, the follow up was over 6.7 +/- 2.1 years. The QRScF was found on 49 patients (36.3%). Tetralogy of Fallot (34.7%), Transposition of Great Arteries with Mustard procedure (24.5%) and Ebstein's disease (18.7%), these were the CHD with QRScF. Comparing to patients without QRScF, the patients presented an important increase of end diastolic volume (165ml vs 100ml; p=0.001), end systolic volume (89 ml vs 65ml; p=0.001). So in the same way there was a decrease of RVSF (47.8 +/- 5.2% vs 60.5 +/- 6.8%; p=0.001) and the tricuspid systolic excursion (12mm vs 16mm; p=0.001). According to the localization of QRScF, patients with anterior localization had lowest ejection fraction (p=0.001) comparing to inferior localization or just at two contiguous leads. From all patients included, 17 (12.3%), had presented VA, all had QRScF. Therefore, the presence of QRScF at anterior localization (OR 9.0, IC 95% 2.7-30.1, p=0.001) was considered as a predictor of VA and RVD (OR 17.5, C 95% 2.1 – 147.8, p<0.001).

**Conclusions:**

The presence of fragmented QRS complex is a predictor of right ventricular dysfunction and VA in patients with CHD.

**Sección:**

Electrocardiografía / Holter monitoring / Syncope

**Tipo final:**

**Ficheros adjuntos:**

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November, 29 & 30

Cartagena 2018

**Autores:**

Teresa Garcia Botta , Gustavo Vera Janavel , Damian Azocar , Agustina Gargano , Valeria Anglesio , Micaela Moccia , Raul Perez Etchepare , Pablo Stutzbach

**Get the most out of your smartphone-based ECG: novel approach for arrhythmia diagnosis**

**Background/Introduction:**

Smartphone-based ECG recorder (SMER) is able to acquire a lead DI trace of the 12-lead standard ECG (ECGst) to automatically discriminates atrial fibrillation (AF). In a previous work, we have found high diagnostic precision of automatic SMER (A-SMER) after excluding a considerable number of undetermined results (UnR). Such results could be reinterpreted by cardiologists (R-SMER) and be added to the automated, diagnostic data. Then, a new, enhanced method (E-SMER) could improve diagnostic performance for arrhythmia detection.

**Objectives:**

To assess diagnostic precision of E-SMER vs ECGst.

**Methods:**

Patients requiring a routine ECGst (except acute coronary syndromes or hemodynamic instability) were included in a prospective, simple-blinded study following Helsinki Declaration & World Medical Association principles. Independent cardiologist ECGst reading was immediately followed by A-SMER. Central tendency of 3 blinded, independent observers readings of UnR were obtained (R-SMER) and added to diagnostic A-SMER readings to generate E-SMER data. McNemar comparison between ECGst vs E-SMER was performed. Diagnostic accuracy, sensitivity (Sn) and specificity (Sp) were computed with MedCalc. Results are reported as percentages (95% Clopper-Pearson confidence intervals). Significance was set at  $p < 0.05$ .

**Results:**

We included 154 patients to obtain A-SMER results. UnR (n=27, 17.5%) were reinterpreted in most cases (R-SMER, n=25); only 2 of them were non-interpretable and excluded. R-SMER correctly reclassified 24 out of 25 patients (3 AF and 21 normal tracings). AF prevalence resulted in 11.2% (6.7-17.3). There was no difference between ECGst and E-SMER (p=NS). E-SMER diagnostic accuracy was 97.4% (93.4-99.4%) with 88.2% (63.6-98.6) Sn and 98.5% (94.6-99.8) Sp.

**Conclusions:**

E-SMER is almost identical to ECGst reading and has excellent diagnostic accuracy for AF detection. We propose R-SMER of undetermined tracings as a new and simple approach to improve SMER performance.

**Sección:**

Electrocardiografía / Holter monitoring / Syncope

**Tipo final:**



FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

**Cartagena 2018**

**Autores:**

Juan Carlos Diaz , Jorge Romero , Jorge Eduardo Marin , Jorge Enrique Velasquez , Julian Aristizabal , William Uribe , Mauricio Duque

**Iatrogenic rupture of the inferior vena cava during pulmonary vein ablation: avoiding surgery using a high distensibility balloon**

**Background/Introduction:**

Iatrogenic rupture of the inferior vena cava (IVC) during electrophysiologic procedures is a rare occurrence, usually requiring surgical management which in turn is associated with significant morbidity.

**Objectives:**

To describe a case of catheter-associated IVC rupture occurring during a pulmonary vein ablation (PVI) managed endovascularly with a high compliance balloon.

**Methods:**

**Results:**

A 73 year-old woman with paroxysmal atrial fibrillation underwent PVI. After obtaining bilateral femoral vein access, 5000 IU of unfractionated heparin were administered, and an intracardiac echocardiography (ICE) catheter was advanced through an 11F 40 cm introducer located at the left femoral vein. Perforation of the IVC with the ICE probe occurred in the segment between the left and right renal veins, and venography revealed the ICE probe located in the retroperitoneal cavity (figure 1A). A high compliance balloon (designed for expansion of aortic stent grafts) was advanced through a right femoral venous access and slowly inflated until expansion produced total occlusion of the perforation was observed in subsequent venographies (figure 1B). Protamine was used to revert heparin. After 3 ten-minute inflations (separated from one another by 30-60 seconds), no more leakage was observed. Venography performed one hour after the last inflation confirmed hemostasis. Abdominal CT scan of the IVC performed 24 hours later revealed no bleeding and the patient was discharged 2 days after the procedure.

**Conclusions:**

In patients with catheter-associated IVC perforation, use of a high distensibility balloon should be considered to achieve hemostasis, either as a definitive measure or as a bridge to surgery to reduce blood loss (in case bleeding continues after repeat balloon inflation).

**Sección:**

Reportes del caso

**Tipo final:**

**Ficheros adjuntos:**

[ruptura\\_de\\_cava\\_figura.jpg](#)



FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

Miguel Tejeda , Jhan Altamar , Carlos Tapias , Juan Montenegro , Luis Saenz , Diego Rodriguez

## **INAPPROPRIATE SHOCKS OF IMPLANTABLE DESFIBRILLATOR DUE TO SUBCLAVIAN CRUSH SYNDROME**

**Background/Introduction:**

Different approaches for the implantation of cardioverter-defibrillators / pacemakers have been developed. The axillary vein, cephalic and subclavian veins are the most used. One of the complications of implanting devices is the damage of the electrode by crushing

**Objectives:**

The case of a patient is presented, who consults for inappropriate shocks by a cardio-defibrillator, associated with electrode dysfunction due to compression

**Methods:**

A 54-year-old male patient who had been implanted with a cardioverter-defibrillator. In April 2016, he received multiple shocks. The interrogation of the device showed noise, which was reproduced when the arm was abducted at a 120 degree angle and which produced an erroneous VF detection, causing inappropriate shocks. An anterior-posterior view of a chest radiograph revealed a deformation of the electrodes just inferior to the clavicle, at the junction of the clavicle and the first rib.

**Results:**

The uncomplicated extraction of the electrode was performed and the inspection showed a deformity by compression of the insulating silicone of the electrode. A new single-coil electrode was implanted with favorable evolution after implantation

**Conclusions:**

Subclavian crush syndrome or compression in the costoclavicular angle is a source of complications. The compression of pacemaker electrodes is related to sub or oversensing and ineffective stimulation. Compression in high voltage electrodes can cause damage to their conductors, coils and their coating. This results in oversensing, inappropriate inhibition of stimulation, stimulation against spurious tachycardia and as in the case previously presented, inappropriate high-energy shocks. The technique for cephalic venodissection and extrathoracic axillary venous puncture are currently suggested as alternatives for venous access and avoid crush damage. The technique for axillary venipuncture can be performed guided by venography with contrast medium or ultrasonography, this can be useful and effective for the incision of electrodes.

**Sección:**

Reportes del caso

**Tipo final:**

**Ficheros adjuntos:**

[1\\_copy6.jpg](#)



FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

**Cartagena 2018**

**Autores:**

Ilaria Cazzoli , Silvia Guarguagli , Joshua Parslow , Sabine Ernst

**Incidental finding of persistent left Superior Vena Cava after Sudden Cardiac Death in Pre-Excitation and Wolff-Parkinson-White**

**Background/Introduction:**

Persistent Left Superior Vena Cava (PLSVC) is a rare congenital anomaly. Wolff-Parkinson-White (WPW) syndrome is defined by the presence of an accessory atrioventricular pathway (AP), manifested with a  $\delta$  wave and sudden onset tachycardia. It is usually diagnosed when pts develop symptoms, however can manifest as sudden cardiac death (SCD).

**Objectives:**

A 31yo man was admitted to our Intensive Care Unit (ICU) after being resuscitated from SCD on ECMO. A contrast-CT performed to investigate pulmonary embolism showed incidentally a PLSVC draining into a dilated coronary sinus (CS). ECG showed pre-excitation pattern, which prompted an emergency catheter ablation procedure.

**Methods:**

Procedure under GA. Venous access exclusively from the right groin after removal of ECMO venous sheath. EP study confirmed the presence of a left AP in the lateral aspect of the mitral annulus. A TSP was performed under fluoroscopic guidance. Subsequent mapping of the LA using EAM in combination with the CT scan. Difficult positioning of the ablation catheter, and recurrent AP re-conduction despite several RF deliveries with up to 55Watts was observed. Finally, the AP was bidirectionally blocked using 25Watts of irrigated tip ablation from the CS-PLSVC junction. During the waiting time bidirectional AP conduction block was confirmed, with physiological ante- and retrograde AV nodal conduction. No atrial fibrillation (AF) was inducible. On telemetry normal QRS morphology over the whole admission, no further arrhythmia recurrence.

**Results:**

SCD may be the first manifestation of WPW, mostly after degeneration of AF into VF. A PLSVC has been found to be associated with anatomical and architectural anomalies of the conduction tissues, secondary to dilation of the CS. This can result in both brady- and tachyarrhythmias, including AF.

**Conclusions:**

RF catheter ablation is the treatment of choice in pts with APs and WPW syndrome. In presence of a PLSVC, ablation from the PLSVC-CS should be considered in order to achieve ablation success.

**Sección:**

Reportes del caso

**Tipo final:**

**Ficheros adjuntos:**

[picture1.jpg](#)



FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

Valeria Anglesio , Marcelo Plaza , Teresa Garcia Botta , Damian Azocar , Agustina Gargano , Gustavo Vera Janavel , Raul Perez Etchepare , Pablo Stutzbach

**Initial experience with cryoballoon ablation in paroxysmal and persistent atrial fibrillation**

**Background/Introduction:**

Cryoballoon ablation (CBA) is an alternative to radiofrequency as a curative treatment for selected patients with drug-refractory paroxysmal and persistent atrial fibrillation (AF).

**Objectives:**

To describe the initial experience in our institution of CBA, evaluating the efficacy and safety of the procedure in patients with paroxysmal or persistent AF.

**Methods:**

Patients undergoing CBA were included between January 2016 and April 2017 to conduct a retrospective observational study. The characteristics of the population, the duration of the procedure (tP) and fluoroscopy (tF) in minutes (min), the proportions of: pulmonary veins (PV) isolated on the total of PV and patients permanently in sinus rhythm over the total population (as endpoints for the efficacy objective) and the rate of complications (as an endpoint for the security objective). The results are expressed as mean  $\pm$  standard deviation for the quantitative variables or as percentages and number (n) of patients for the proportions.

**Results:**

We included 32 patients with  $55 \pm 13$  years of age, 78.1% (n = 25) of males, body mass index of  $28.4 \pm 4.6$  kg / cm<sup>2</sup>, AI of  $40.2 \pm 9$  mm, 68.8 % (n = 22) with paroxysmal AF and 31.2% (n = 10) with persistent AF. tP was  $117.6 \pm 41.3$  min, with a tF of  $36.1 \pm 11.8$  min. The isolation of 99.2% (n = 127) of the VP was achieved. As a complication, transient phrenic paralysis occurred in 18.8% of the sample (n = 6). At  $11 \pm 5$  months of follow-up, 93.75% (n = 30) remained in sinus rhythm.

**Conclusions:**

With about one year of follow-up and in a usual population, we obtained a high percentage of PV isolation with a short duration of the procedure and fluoroscopy and a low rate of transient complications. At follow-up, the recurrence of AF was low. Therefore, we conclude that in our initial experience, CBA proved to be an effective and safe technique.

**Sección:**

Electrofisiología Clínica y Ablación con Catéter

**Tipo final:**



FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

Cartagena 2018

**Autores:**

Felipe Cañas Orduz , Julian Yara , Pablo Eduardo Perafán , Luis Fernando Pava

**Interatrial dyssynchrony by endocavitary electrograms in patients with heart failure who are candidates for cardiac resynchronization therapy.**

**Background/Introduction:**

Some patients with heart failure may benefit from cardiac resynchronization therapy (CRT). Despite meeting the criteria for inclusion of pivotal studies, about 30% of patients do not respond to CRT. One possible explanation is the inter-auricular dyssynchrony, which has been recently described by echocardiography.

**Objectives:**

To describe the interatrial conduction time (IACT) measured through endocavitary electrograms as a marker of inter-auricular dyssynchrony. IACT of patients taken to CRT are compared with IACT of patients without ventricular dysfunction, to determine the frequency and magnitude of the differences.

**Methods:**

Ten patients with congestive heart failure, in sinus rhythm, with functional class NYHA II to IV, QRS greater than 120 ms with left bundle branch block were compared with ten controls who underwent electrophysiological study in structurally normal heart. The IACT was defined by intracavitary catheter measurements. Depolarization of the right atrium was measured in the electrogram obtained in the atrial cavity junction, and the electrogram of the left atrium (LA) was obtained in the most posterior and lateral part of the coronary sinus, as well as left ventricle (LV) depolarization

**Results:**

The TCIA was significantly higher in the group of patients taken to CRT with  $86 \pm 22$  msec vs  $52 \pm 12$  msec in the controls ( $p < 0.001$ ). The LA - LV conduction time was also higher in the CRT group with  $158 \pm 44$  msec vs  $112 \pm 25$  msec ( $p < 0.05$ ) (figure 1).

**Conclusions:**

IACT measured by intracavitary electrograms is abnormally prolonged in patients who have an indication for CRT compared to controls. It is likely that this abnormality can be taken into account to improve the programming of the CRT, as well as motivating the study of other ways of stimulation to improve the hemodynamic relationship between the LA and the LV.

**Sección:**

Dispositivos Electrónicos Implantables Cardiovasculares

**Tipo final:**

**Ficheros adjuntos:**

[Figure 1. Activation times between cavities by endocardial electrograms. We found a significant increase in activation time RA - LA represented the interatrial conduction time \(IACT\). The time between the LA and the LV was also prolonged. RA: right atrium, LA: left atrium, LV: left ventricle. Values represented in means with DS. \\*:  \$p < 0.05\$  \\*\\*:  \$p < 0.01\$  \\*\\*\\*:  \$p < 0.001\$](#)



FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

Eduardo Saad , Charles Slater , Luiz Antonio Inacio Jr , Lucas Carvalho , Luiz Eduardo Camanho

**Isolation of the Left Atrial Appendage and Coronary Sinus for Treatment of Persistent AF: Long Term Results**

**Background/Introduction:**

Isolation of the pulmonary veins (PVI) as a stand-alone procedure is associated with a high recurrence rate in pts with persistent AF (persAF). Extra PV lesions are usually performed in trying to improve rhythm control.

**Objectives:**

Evaluate the safety and efficacy of isolation of the left atrial appendage (LAA) and coronary sinus (CS) on top of antral PVI in pts with persAF.

**Methods:**

12 pts (mean age  $65 \pm 12$  years, 75% male) with recurrent AF after a first PVI + posterior wall isolation procedure underwent a redo procedure guided by 3D imaging and ICE.

The LAA was isolated using circumferential RF lesions (max power 35W), guided by a circular mapping catheter positioned at its ostium. The CS was isolated by a combination of endocardial and inside the CS RF lesions (distal to proximal, max power 30W). Esophageal temperature was monitored when ablating in the CS and RF was interrupted if  $> 39$  degrees.

Isolation was proved by elimination of electrograms or by the presence of dissociated potentials.

Reisolation of the PVs or ablation of other inducible arrhythmias were performed when needed.

**Results:**

LAA isolation was achieved in 9/12 pts (75%), with intra-procedural reconnection in 4 pts (44%), up to 90 min after initial isolation. Reisolation was achieved with further RF lesions. One pt needed ablation in the distal CS to isolate the LAA.

CS isolation was obtained in 8/12 pts (67%), with acute reconnection in 3 pts (38%).

After  $14 \pm 2$  months of follow-up, 8 pts (67%) were arrhythmia-free. All the recurrences were in atrial flutters or tachycardia in either LA or RA, all mapped and ablated. In those, the LAA wasn't initially isolated in 2 pts; in other 2 pts the LAA was reconnected.

No acute or long-term complication were observed in these series.

**Conclusions:**

**LAA and CS isolation can be safely performed in pts with persAF recurring after an initial PVI + posterior wall procedure and is associated with excellent long-term rhythm control.**

**Sección:**

Electrofisiología Clínica y Ablación con Catéter

**Tipo final:**



FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

Cartagena 2018

**Autores:**

Oscar Henao Gallo , Eduardo Ramirez Vallejo , Carolina Valenzuela Botero

**Issues and frequencies characteristics of ECG signal using Hilbert-Huang time frequency tools: a pilot study of human repolarization syndrome**

**Background/Introduction:**

The 12 lead electrocardiographic signal are innate non-linear comporment and your frequency characteristic are not limited, especial in J syndromes waves. This syndromes change the shape and the phase of final QRS and the completely ST wave. The J point changes in ischemic events, hypothermic condition and channelopathies in the cardiac tissue

**Objectives:**

In this work we presented a new methodology of non-lineal analysis of electrocardiographically signal using the Hilbert-Huang Transform and describe frequency development for J-wave syndrome

**Methods:**

We are using two databases; one generated GNU ECGSIM for potential action change (excitability, slope variation in resting potential and repolarization segment) and other using *PHYSIONET* (MIT-GNU public) signal with J-point elevations.

We development a user graphic interface in Matlab for charge and analysis 12 derivations ECG. We program the Pan-Tompkins algorithm for base state of signal (duration, and segment amplitude). We program the Hilbert-Huang transform for the amplitude and phase issue of ECG. Frequency characteristics of ECG from two database are analyzed and the principal characteristic are done.

**Results:**

We obtained the characteristic base state of signal ECG using the algorithmic Pan-Tompkins and the Hilbert-Huang transform for describe the amplitude-phase segments and the energy density content frequency. For the signal with J alterations, we are emphasis in changes for curvature and slope into the final QRS segment and the birth ST segment. Finally we analysis the frequency sequence for appearance for J point and the development for your characteristic.

**Conclusions:**

We search frequency characteristic of 12 leads ECG for establishment J-syndrome. We find the J-syndrome are very good characterized in the range of 20 to 30 Hz, using enugu compound dependant from frequency. Finally the non-lineal signal of ECG characteristic in J syndrome are due in time-frequency compounds and energy density profile is unique for this cardiac syndrome

**Sección:**

Electrocardiografía / Holter monitoring / Syncope

**Tipo final:**



FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

ANDRES GOMEZ , JUAN CARLOS DIAZ , JULIAN ARISTIZABAL , JORGE VELASQUEZ , JORGE MARIN , WILLIAM URIBE , MAURICIO DUQUE

**Kearns-Sayre Syndrome: a rare cause of atrioventricular block in the young**

**Background/Introduction:**

Kearns-Sayre syndrome (KSS) is an infrequent condition caused by spontaneous deletions in mitochondrial DNA characterized by the clinical triad of external ophthalmoplegia, pigmentary retinopathy and cardiac conduction blocks presenting usually before age 20.

**Objectives:**

To describe two cases of Kearns-Sayre syndrome presenting for medical attention with complete atrioventricular (AV) conduction block and all characteristic features of this rare condition.

**Methods:**

**Results:**

The first case is a 22-year-old man presenting to the emergency room with an episode of syncope and progressive limiting of physical activity within the previous months. He also referred progressive bilateral ptosis starting several years before. Electrodiagnostic studies reported skeletal muscle myopathy and neurologic assessment concluded complete bilateral ophthalmoparesis.

The second case is a 24-year-old man with ptosis starting since age 15 years, slowly progressing. During that period of time he developed progressive bradycardia and finally a complete AV block was documented.

In both cases skeletal muscular biopsy reported multiple mitochondrial anomalies in the high resolution optical microscopy and immunohistochemistry studies compatible with muscular mitochondrial myopathy.

The two patients underwent a bicameral permanent pacemaker implantation for the management of complete AV block.

Currently, results of genetic testing for both patients are pending.

**Conclusions:**

In young patients without apparent acquired causes of atrioventricular block, genetic or metabolic causes have to be taken into account. The presence of ocular and muscular involvement starting before second decade of life should rise the suspicion of mitochondrial disease.

**Sección:**

Reportes del caso

**Tipo final:**

**Ficheros adjuntos:**

[kearn\\_sayre\\_1.jpg](#)



FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

Héctor Mazzetti

## **LEAD EXTRACTION IN CHILDREN AND ADOLESCENTS, SINGLE SURGEON EXPERIENCE**

**Background/Introduction:**

Background: Implantation of pacemakers and defibrillators in children and adolescents (Ch Ad) has been extended over time and this has resulted in a greater number of complications that forced the removal of their leads (L).

**Objectives:**

Show our experience and compare with adults.

**Methods:**

Given that pediatric institutions have few extractions (E), and therefore their experience is limited, operations were conducted in these institutions (16), by an expert surgeon in L E in adults, seconded by pediatricians. This is a personal experience that began on 20/July/93 to 02/August/18. A total of 1034 patients (P) from whom were extracted 1839 L, were treated 46 P Ch Ad, with an average of 12.72 years, 29 males (63.04%). L extracted were 60, 13 atrial (A), 36 ventricular (V) and 11 defibrillator (D). The A L were all active fixation (F), with an implant duration (ID) of 37.23 months (m) between 6 m and 92 m. Among V L, there were 26 L with passive F and 10 L with active F, with an ID of 73.67 m, between 10 m and 183 m. The D L were all active F except 1, with an ID of 39.5 m, between 10 m and 131 m. Indications for L E: abandoned 3 L, pocket infection 15 L, endocarditis 7 L, multiple L 3 L, malfunction 31 L and incompatibility with MRI 1 L.

**Results:**

There were 52 L with complete E (86.66%), partially 7 L (11.66%) (one of 36 m, a 40 m, two of 92 m, a 103 m, a 171 m and a 183 m) an A L and 6 V L. There was a failing extraction on a defibrillator L (1.66%) of 131 m requiring open surgery for removal. Fibrous tissue in young P is much stronger than in adults and in the elderly, that's why the effectiveness is lower with respect to the total number of L extracted, which in this database is complete E 95.44%, partial withdrawals 3.64% and failures 0.92%. During the same surgery there were reimplanted 39 P. There were no major or minor complications.

**Conclusions:**

Transvenous L E of pacemaker and defibrillator leads in Ch Ad is possible and safe, though their effectiveness is lower than in adults and the elderly.

**Sección:**

Dispositivos Electrónicos Implantables Cardiovasculares

**Tipo final:**



FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

**Cartagena 2018**

**Autores:**

Oscar Alberto Henao Gallo , Eduardo Ramirez Vallejo , Andres Paolo Castaño

**Left wedge and ventricle transmural model to simulate the dual role of metabolic current in reentry for ischemic event**

**Background/Introduction:**

Ischemic disease has generated reentrant arrhythmias in the transmural wall left ventricle.

**Objectives:**

We present a model of transmural human left wedge ventricle including cellular heterogeneity and activation Potassium dependent of ATP current to simulate change duration in action potential and study the arrhythmic issue in tissue.

**Methods:**

A three-dimensional model of a reconstructed human left ventricle is made based on MRI images. The model includes cell heterogeneity (epicardium-M cells-endocardium) simulated using the biophysical Luo-Rudy model into addition ATP-dependent potassium current (guinea pigs published by Ferrero-Henao). Into the wall in ventricle the lesion activate version emulated of  $I_{K_{ATP}}$  and  $I_{to}$  (output transient potassium current) to modeling change ischemic disease proposed for Antzelevitch using ionic model of Ten-Tuscher. Stimulation protocol S1-S2 are used to generated ectopic beat

**Results:**

Activation of potassium current ATP-dependent and transient output potassium is developed to find the electrical changes in the wedge into the ventricle generated loss of the potential dome, shortening action potential and trigger phase two reentry. In the ventricular wedge, activation of the interaction from M-Cell and the activation from 0.4% of  $I_{K_{ATP}}$  generating spiral reentry which do two rotation into lesion and functionally eliminate this pattern. In the ventricle that activation generate eight-shaped reentry due change repolarization and ST elevation segment in a 22%, the shortly potential duration to more than 80 ms forming and finalize potential reentry in the tissue.

**Conclusions:**

The model developed allows the study of different cell components and their disturbance in in ischemia simulated into the wedge or in ventricle lesion. The reentry powered by alteration in potential duration in lesion provide the triggered and the respectively termination into tissue simulated.

**Sección:**

Ciencia básica / traslacional

**Tipo final:**



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November, 29 & 30

**Cartagena 2018**

**Autores:**

Carlos Tapias , Diego Rodriguez , Fermin Garcia , Luis Saenz

**Middle cardiac vein as a route for epicardial ventricular tachycardia ablation**

**Background/Introduction:**

The site of origin of a focal tachycardia or a portion of the critical isthmus or even the entire circuit of a macroreentrant tachycardia can be located deep in the endocardium or even in the subepicardium and could only be mapped and ablated from the epicardium. The percutaneous approach has proved to be effective, nevertheless there could be severe complication (5%) and in some cases the epicardial access cannot be obtained. We describe an alternative approach for epicardial VT ablation

**Objectives:**

Describe 3 cases of epicardial VT ablation from the middle cardiac vein (MCV)

**Methods:**

N/A

**Results:**

Three male patients (61, 76 and 77 years old with ischemic cardiomyopathy) presented with recurrent VT refractory to antiarrhythmic therapy. They had contraindication to epicardial mapping given prior cardiac surgery. The left ventricular ejection fraction ranged between 32-39%. They underwent VT ablation guided by ICE and electroanatomic mapping (EAM) demonstrated endocardial substrate consistent with the coronary artery events. The clinical VT were induced and no good targets were identified in the endocardium. with left bundle branch morphology and upper left axis. it is practiced percutaneous epicardial approach; however, the presence of adhesions was noted so the technique was aborted. Epicardial mapping was performed via the MCV, using a deflectable sheath. Mapping demonstrated abnormal electrograms and good entrainment mapping. (figure 1a). Radiofrequency ablation at this site terminated and rendered the VT non inducible (Figure 1b).

**Conclusions:**

We describe 3 cases of VT ablation in which the critical part of the circuit was located in the epicardium. Percutaneous access was contraindicated and epicardial mapping was performed via the MCV, and were successfully ablated without complications. Epicardial mapping and VT ablation from the middle cardiac vein is effective and safe alternative when epicardial access is not possible.

**Sección:**

Electrofisiología Clínica y Ablación con Catéter

**Tipo final:**

**Ficheros adjuntos:**

[figura\\_1.jpg](#)



FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

Carina Hardy , Lucas Moura , Muhieddine Chokr , Cristiano Pisani , Sissy Lara , Simone Santos , Hitalo Vasconcelos , Mauricio Scanavacca

**Ocorrência de taquicardia fascicular originada dos músculos papilares após ablação de extra-sístole ventricular de músculo papilar pósterio medial**

**Background/Introduction:**

A taquicardia ventricular fascicular (TVF) tem um mecanismo reentrante usando a rede de Purkinje como parte de seu circuito. Músculos papilares (MPS) são estruturas endocárdicas que abrigam substrato arritmico em coração normal. Em 2017 Komatsu e col descreveram a TVF dos músculos papilares (TVFMPs) onde o circuito pode envolver a rede de Purkinje em torno dos MPs

**Objectives:**

**Methods:**

**Results:**

Homem, 47 anos, submetido a 2 ablações em 2017 de extrasístoles ventriculares (EV) de MP post-medial (MPPM). A primeira foi com mapeamento eletroanatômico (MEA) ENSITE (St J®) e sucesso porém com recorrência. A segunda 4 meses depois com MEA CARTOsound (BW®) com novo sucesso. Um mês após, teve pré-síncope e TV sustentada, nunca apresentada antes, com morfologia de BRD e eixo superior (fig 1A), semelhante às EVs prévias. A TV não era sensível a verapamil IV e necessitou de CVE. Refratário a amiodarona e verapamil e com novos eventos de TV, foi submetido a ablação em 2018 com MEA CARTOsound (BW®). A TV foi induzida com estimulação ventricular programada e isoproterenol. O mapa de ativação e eco intracardíaco (ICE) dos MPs mostrou maior precocidade no ápice do MPPM (fig 1B E 1C). Nesse local, foi observado um potencial mesodiastólico isolado com precocidade de 50ms em relação ao QRS, sugestivo de potencial de Purkinje (P1) (fig 1D) e participação do fascículo pósterio medial no circuito da arritmia, sugerindo o diagnóstico de TVFMPs. Foram realizadas aplicações de RF (Cateter SmartTouch SF BW® 40W) com interrupção e não reindução da TV mesmo após infusão de isoproterenol. Acreditamos que as ablações prévias das EV modificaram a região dos MPs próxima ao fascículo, propiciando a reentrada e TVFMPs, antes não apresentada pelo paciente. O paciente não teve recorrência de arritmias.

**Conclusions:**

A TVFMPs é uma entidade pouco conhecida. A ablação com ICE e MEA são de grande ajuda. O diagnóstico e o entendimento do seu mecanismo, parece ser de extrema importância para aumentar a efetividade deste complexo procedimento

**Sección:**

Reportes del caso

**Tipo final:**

**Ficheros adjuntos:**

[figura--tvfmp \(1\).jpg](#)



FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

Juan Carlos Diaz , William Uribe , Jorge Romero , Julian Miguel Aristizabal , Jorge Enrique Velasquez , Jorge Eduardo Marin , Mauricio Duque

**Percutaneous left atrial appendage closure in a patient with a previous incomplete surgical closure**

**Background/Introduction:**

Left atrial appendage (LAA) closure is an alternative to oral anticoagulation for stroke prevention in patients with non-valvular atrial fibrillation. The use of LAA closure devices in patients with incomplete surgical closure has been reported previously, with few patients undergoing this procedure.

**Objectives:**

To describe a case of LAA closure in a patient with a previous incomplete surgical closure.

**Methods:**

**Results:**

An 83 year-old patient with a past medical history of aortic valve replacement with a biological valve, paroxysmal atrial fibrillation and recurrent gastrointestinal bleeding (multiple angiodysplasia found on colonoscopy). During aortic valve surgery, the patient had undergone LAA ligation with continuous suture. He was unable to receive oral anticoagulation due to the bleeding episodes and had 2 previous strokes while he was without anticoagulation. A transesophageal echocardiogram revealed incomplete LAA ligation, with a 5 mm orifice which allowed blood flow into the LAA (figure 1A). He was brought to the electrophysiology department for percutaneous closure. During the procedure, after placing the Watchman access sheath in the left atrium, an high support 0.32" guidewire was advanced through the LAA orifice. Using this as support, the access sheath with the dilator in place was advanced into the LAA; once the sheath had passed through the orifice the dilator was retrieved (figure 1B). A 27 mm Watchman device was used to occlude the LAA, with a minimal residual leak (figure 1C).

**Conclusions:**

Due to the high risk of stroke in patients with incomplete surgical closure, percutaneous LAA closure is a feasible procedure and should be considered an alternative in patients in whom long-term oral anticoagulation is contraindicated.

**Sección:**

Reportes del caso

**Tipo final:**

**Ficheros adjuntos:**

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FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

**Cartagena 2018**

**Autores:**

Julián Aristizábal , Jorge Marín , Juan Carlos Díaz , Jorge Velásquez , William Uribe , Mauricio Duque

**Percutaneous mechanical extraction of defibrillator leads: is there a higher risk of complications?**

**Background/Introduction:**

The extraction of electrodes from cardiac stimulation devices is a frequent practice in multiple centers. There is a theoretical possibility of more frequent complications when removing defibrillator leads due to fibrosis related to coils.

**Objectives:**

The objective is to describe the experience in high energy leads removal and to compare the incidence of complications with conventional leads in a reference center

**Methods:**

77 patients underwent a percutaneous mechanical extraction procedure of 144 electrodes of which 42.8% had a cardio-defibrillator or cardio resynchronization devices

**Results:**

The average age was 65.3 years (SD 13.8) and 64.9% were men. The average time since implantation of the device was 5.8 years (SD 3.9): the indication for implant was non-ischemic heart disease in 51.5% (17/33) and primary prevention in 75.7% of patients . The most frequent cause for removing the leads was dysfunction or damage in 33.7% of cases, followed by infection in 29.8% of them. Of the total of 144 cables extracted, 20.8% were defibrillator leads which were successfully removed. Of the patients with conventional electrode extraction, 2.7% had minor complications (hemothorax, vascular injury without surgery) compared to 3.3% (hemothorax) in defibrillator electrodes (P = 0.62).

**Conclusions:**

The indications for leads extraction are similar in pacemakers and defibrillators. The extraction of high-energy electrodes has a high efficiency and safety, comparable with the extraction of conventional electrodes.

**Sección:**

Dispositivos Electrónicos Implantables Cardiovasculares

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FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

**Cartagena 2018**

**Autores:**

Miguel Tejada , Jhan Altamar , Juan Montenegro , Luis Saenz , Diego Rodriguez

**Posterolateral accessory pathway ablation in a patient with congenital long QT syndrome**

**Background/Introduction:**

Wolff Parkinson White Syndrome (SWPW) is a disease with an anomaly in depolarization and long QT syndrome (LQT) in the re-polarization. We present the case of a patient with SWPW and LQT syndrome undergoing catheter ablation of an accessory pathway

**Objectives:**

The patient was a 22-year-old female with a history of sudden onset and syncope palpitations. During sinus rhythm, intermittent preexcitation and prolongation of the QT interval were observed, both during preexcitation or without. Patient was referred for electrophysiological study and ablation with 3D mapping system. He had no family history of sudden death or long QT syndrome.

**Methods:**

Ablation of posterolateral accessory pathway was performed. An important prolongation of the QTc interval was documented in the electrocardiogram of 12 derivatives after achieving successful ablation; without a clear cause of explanation, so it was determined to remain under observation

**Results:**

It presented sudden death reanimated on the first post-operative day, related to polymorphic ventricular tachycardia. The follow-up of the QTc interval in the post-operative period shows a persistence of the prolongation. Taking into account the score obtained by the Shwartz score, - 5 points, the patient was diagnosed with congenital long QT syndrome, therefore a cardio-defibrillator was implanted

**Conclusions:**

The incidence of these two syndromes simultaneously is extremely rare (1 to 3 / 5,000,000). SWPW is associated with abnormalities in depolarization; however, it can cause secondary abnormalities in repolarization due to a phenomenon known as cardiac memory. It has been described that the reversion of the repolarization alterations in this scenario occurs up to 1 month after the ablation of accessory pathways. Taking into account that the patient is a survivor of an episode of sudden death and the high probability of diagnosis according to the clinical score, we decided to opt for the implantation of the cardio-defibrillator

**Sección:**

Reportes del caso

**Tipo final:**

**Ficheros adjuntos:**

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FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

**Cartagena 2018**

**Autores:**

Alejandro Vidal Margenat , Alexios Hadjis , Ahmed AlTurki , Riccardo Proietti , Martin Bernier , Jacqueline Joza , Tomy Hadjis , Vidal Essebag

**Predicting Electrocardiographic and Echocardiographic Response to Cardiac Resynchronization Therapy: The Use of Strict Left Bundle Branch Block Criteria**

**Background/Introduction:**

Cardiac resynchronization therapy (CRT) reduces morbidity and mortality in heart failure with reduced ejection fraction (HFrEF). CRT efficacy is greater in left bundle branch block (LBBB).

**Objectives:**

This study aimed to determine if strict LBBB criteria predicts an improved QRS duration and left ventricular ejection fraction (LVEF) response after CRT.

**Methods:**

HFrEF patients who received a CRT device at a single quaternary center were included. Patients were divided into 3 groups based on baseline QRS morphology. Group 1 consisted of patients with strict LBBB. Group 2 had conventional LBBB, and group 3 had non-LBBB morphology. The primary endpoint was change in QRS duration after CRT. The secondary endpoints were change in LVEF and the correlation between changes in QRS duration and LVEF.

**Results:**

In 231 patients, 56% of patients were in group 1, 29% were in group 2 and 15% were in group 3. Mean change in QRS duration was  $-20.9 \pm 12.4$ ,  $+6.7 \pm 19.4$  and  $+3.9 \pm 29.3$  in groups 1, 2 and 3 respectively; strict LBBB predicted an improvement in QRS duration compared to conventional LBBB ( $p < 0.0001$ ) and non-LBBB ( $p < 0.0001$ ). Mean change in LVEF was  $+19.5 \pm 10.2$ ,  $+5.3 \pm 12.6$  and  $-1.3 \pm 10.9$ , in groups 1, 2 and 3 respectively, with strict LBBB predicting an improvement in LVEF compared to conventional LBBB ( $p < 0.0001$ ) and non-LBBB ( $p < 0.0001$ ). There was moderate negative correlation between changes in QRS duration and LVEF (correlation coefficient  $= -0.63$ ,  $p < 0.0001$ ).

**Conclusions:**

Strict LBBB predicted an improved QRS and LVEF response compared to conventional LBBB and non-LBBB morphology in patients with HFrEF who received CRT.

**Sección:**

Dispositivos Electrónicos Implantables Cardiovasculares

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FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

Alejandro Vidal Margenat , Barry Burstein , Pedro Yuri Paiva Lima , Daniel Garcia , Rodrigo S. Barbosa , Jacqueline Joza , Martin Bernier , Vidal Essebag

**Prevention of Venous Thrombosis after Electrophysiology Procedures: A Survey of National Practice**

**Background/Introduction:**

Femoral venous access is required for most electrophysiology procedures. Limited data are available regarding post-procedure venous thromboembolism (VTE), specifically deep vein thrombosis (DVT) and pulmonary embolism (PE). Potential preventative strategies are unclear.

**Objectives:**

We aimed to survey the national centers regarding incidence of VTE and strategies for prevention of VTE after procedures that do not require post-procedure anticoagulation.

**Methods:**

An online survey was distributed to electrophysiologists representing major EP centers of the country. Participants responded regarding procedural volume, incidence of VTE post-procedure, and their practice regarding pharmacological and non-pharmacological peri-procedural VTE prophylaxis.

**Results:**

The survey included 17 centers that performed a total of 6062 procedures in 2016. Ten patients (0.16%) had VTE (including 9 DVT's and 6 PE's) after diagnostic electrophysiology studies and right-sided ablation procedures excluding atrial flutter. Five centers (41.6%) administered systemic intravenous heparin during both diagnostic electrophysiology studies and right-sided ablation procedures. For patients taking oral anticoagulants, 10 centers (58.8%) suspend therapy prior to the procedure. Two centers (11.8%) routinely prescribed post-procedure pharmacologic prophylaxis for VTE. Four centers (23.5%) used compression dressings post-procedure and all prescribed bed rest for a maximum of 6 hours. Of the variables collected in the survey, none were found to be predictive of VTE.

**Conclusions:**

VTE is not a common complication of EP procedures. There is significant variability in the strategies used to prevent VTE events. Future research is required to evaluate strategies to reduce the risk of VTE that may be incorporated into EP practice guidelines.

**Sección:**

Electrofisiología Clínica y Ablación con Catéter

**Tipo final:**



FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

**Cartagena 2018**

**Autores:**

Diego Rodríguez , Susano Lara , Gustavo Maid , Francisco Toscano Quilon , Nestor Galizio , Martino Martinelli , Silas Galvao , Claudio Muratore

**Primary Prevention ICD therapy in emerging markets: Results from the Improve SCA Clinical Study**

**Background/Introduction:**

ICD utilization remains low for primary prevention (PP) patients (pts) in many regions of the world. Recently, 1.5 prevention criteria were proposed, which supplement PP indications with additional sudden cardiac death (SCD) risk factors of syncope, left ventricular ejection fraction <25%, non-sustained VT or frequent PVCs. Retrospective analyses have shown similar VT/VF event rates between pts with 1.5 and secondary prevention (SP) indications. 1.5 prevention criteria could be used to direct scarce healthcare resources to pts who benefit most.

**Objectives:**

The primary objective of the IMPROVE SCA study was to evaluate the VT/VF therapy rates for 1.5 prevention pts compared to SP pts. The secondary objective was to compare mortality rates between those 1.5 prevention pts implanted with an ICD/CRT-D and those electing to not receive a device.

**Methods:**

Improve SCA was a prospective, non-randomized, non-blinded multicenter study where pts were enrolled from emerging markets where ICD utilization was low among PP-indicated pts. Pts were evaluated for the determination of PP, SP, and 1.5 prevention criteria and were followed to evaluate VT/VF therapy rates and mortality in those with and without ICDs. All device detected VT/VF episodes were adjudicated by an independent physician review committee. Estimates of mortality between the cohorts were tested with a Cox proportional hazards model and adjusted for known factors affecting the risk of death.

**Results:**

A total of 3,892 eligible pts were enrolled; 1,914 1.5 prevention pts, 1,194 SP pts, and 784 non-1.5 PP pts, of which 89.4% SP, 55.7% 1.5, and 42.3% non-1.5 PP pts received an ICD/CRT-D device. Full results of VT/VF therapy rates and mortality will be available for presentation at the time of the conference.

**Conclusions:**

The results of this large, real-world evaluation of PP ICD indication will provide insights into the use of 1.5 criteria which has the potential to help physicians direct scarce health care resources to optimize the benefit of SCD prevention.

**Sección:**

Dispositivos Electrónicos Implantables Cardiovasculares

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FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

**Cartagena 2018**

**Autores:**

Rita Ibarra Castillo , José Laso Bayas , Jorge Luis Arbaiza Simon

**Results of radiofrequency ablation of idiopathic left ventricular tachycardia with different strategies**

**Background/Introduction:**

Idiopathic left ventricular tachycardia (LVT) is a common form of ventricular tachycardia (VT) in structurally normal hearts. Different methods have been proposed for radiofrequency ablation (RFA).

**Objectives:**

This study aimed to describe outcomes of patients undergoing RFA of LVT with different strategies.

**Methods:**

From 2012 to 2018, 12 patients with LVT, underwent RFA. Ten men, mean age  $30 \pm 15$  years. Ten had right bundle branch (RBB) VT and left axis deviation, 1 RBB and right axis deviation and 1 a narrow QRS VT. All were approached with an electroanatomic navigator and a 4mm non-irrigated ablation catheter introduced through the aorta. Six patients had inducible VT. In this group we created an activation map (ACT) and RFA was targeted to the earliest activation site. If VT continued inducible, we performed the anatomic approach (ANA) consistent in linear RFA at the distal third of the septum. The patient with the narrow VT presented recurrence one year after a RFA (strategy unknown); in the second procedure RFA was at the earliest diastolic potential (DP) in the upper septum. For 5 patients with non-inducible VT, ANA was the strategy.

**Results:**

In the inducible group, ACT was successful in 4 patients and ANA in 2; 2 (33%) had recurrence (not for the ANA) in a mean of 3.5 months; 1 was successfully reintervened with ACT because VT configuration suggested origin at the anterior fascicle. For the non-induction group, ANA was attempted in 4; 1 could not be ablated. There was 1 (20%) recurrence 3 months after RFA. This and the narrow QRS VT patient were reintervened successfully using identification of DP. Neither patient had recurrence after a second procedure. A favourable outcome was observed in 83% of the group. The complication rate was 17%.

**Conclusions:**

In this small series of LVT, ANA strategy for RFA seems to be more successful and with less recurrence rate than ACT in patients with RBB left axis deviation, even in those with inducible VT. The other forms of LVT are rare and deserve individualized approach.

**Sección:**

Electrofisiología Clínica y Ablación con Catéter

**Tipo final:**



FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

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**Robotically assisted left ventricular epicardial lead implantation for biventricular pacing: A case report.**

**Background/Introduction:**

Prospective randomized trials have demonstrated improvements among patients undergoing ventricular resynchronization therapy (CRT) via biventricular pacing. However, technical limitations owing to individual coronary sinus (CS) and coronary venous anatomy result in a 10% to 15% failure rate of left ventricular (LV) lead placement and effective biventricular pacing. Lead dislodgment contributes to an additional 5% to 10% late failure of LV lead capture; rescue therapy for these frail patients has involved epicardial lead placement to provide a minimally invasive option.

**Objectives:**

Present a patient case with fails CRT due to LV lead dysfunction and implant a LV epicardial lead assisted with robot.

**Methods:**

A 69-year-old man with dilated cardiomyopathy secondary to coronary artery ectasia. NYHA functional class III despite optimal pharmacological management, left ventricular ejection fraction (LVEF) 11% and left bundle branch block (LBBB), intrinsic-QRS 160ms, he was implanted a transvenous cardiac resynchronization-defibrillator device (CRT-D) with subsequent LV lead dysfunction; complete device was extracted and new system was implanted with LV lead dislodgment in CS and fails for transeptal implant.

Owing to a high cardiac pacing (85%), pacing-QRS 220ms, LVEF 11%, diastolic diameter (DD) 72mm, end-diastolic volume (EDV) 220ml/m<sup>2</sup>, moderate mitral regurgitation (MR), intraventricular asynchrony and six-minute walk test (6MWT) with 263m, we implanted a LV epicardial lead (Myodex, St Jude Medical) assisted with robot (da Vinci Robotic Surgical System) without complications.

**Results:**

Patient evolved towards improvement after six months, NYHA functional class II, 6MWT 290m, pacing-QRS 140ms, LVEF 23%, DD 69mm, EDV 181ml/m<sup>2</sup>, moderate MR, intraventricular synchrony. Device follow-up with biventricular pacing of 99%, pacing threshold (1.0V/0.6ms).

**Conclusions:**

Endoscopic epicardial LV lead placement assisted with robot is an excellent rescue therapy for biventricular pacing after CRT fails with a LV lead in CS.

**Sección:**

Reportes del caso

**Tipo final:**

**Ficheros adjuntos:**

[imagen\\_lahrs\\_2018.pdf](#)



FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

**Cartagena 2018**

**Autores:**

E González , JL Assad , JR Azpiri , C De la Peña , E Cardona , E Gardner , P Maguire , P Zei

**Safety and Efficacy of Pulmonary Vein Ablation Using Stereotactic Noninvasive Radiotherapy: First in Man**

**Background/Introduction:**

Catheter ablation is an effective therapy for atrial fibrillation. However, risks remain and improved efficacy is desired. Stereotactic ablative radiotherapy (SABR) is highly focused radiation therapy to treat malignancies noninvasively. Recently, this technology has been evaluated for treatment of cardiac arrhythmias.

**Objectives:**

We sought to evaluate stereotactic radioablative therapy as a therapeutic option for treating paroxysmal atrial fibrillation (PAF).

**Methods:**

Two patients with symptomatic drug refractory PAF were enrolled. After placement of a percutaneous right atrial active fixation temporary pacing lead as tracking fiducial, CT angiography and cardiac MRI were performed to define left atrial (LA) anatomy. Planning software was used to create a desired ablation volume encompassing antral circumferential pulmonary vein, a roof line, and an inferior posterior line to create a "box" lesion set. A three-dimensional rendering of the LA was imported into the planning software associated with the treatment system. After that, patients were treated in the radioablation suite. Clinical follow-up was performed at least 12 months after therapy.

**Results:**

The patients' target volume were able to be contoured and treated. No complications were seen both immediately and over the course of follow-up, up to 42 months. One patient developed recurrence of AF after 6 months free of arrhythmia, while the second patient remains free of AF during 3 months, after that, only reports brief self-limited PAF episodes on reduced antiarrhythmic drug therapy. The duration of treatment was 81 minutes for the first patient and 72 mins for the second. The planning target volume (PTV) was 48.87 and 9.60 cc respectively, and the CyberKnife treatment system delivered a total dose of 25 Gy in one fraction at both patients.

**Conclusions:**

Stereotactic radioablation may be an effective and safe strategy for treatment of drug refractory atrial fibrillation. Further evaluation is warranted.

**Sección:**

Ciencia básica / traslacional

**Tipo final:**



FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

Andrea Lui , Fernando Verdugo , Carlos Piedra , Marianella Seguel , Rodolfo Oyarzun

## **SEGUIMIENTO DE PACIENTES CON DESFIBRILADOR AUTOMATICO IMPLANTABLE.**

**Background/Introduction:**

El desfibrilador automático implantable (DAI) es la terapia más efectiva para la prevención secundaria y primaria de muerte súbita cardíaca (MSC).

**Objectives:**

Analizar nuestra experiencia en pacientes con implante de DAI.

**Methods:**

Estudio retrospectivo en pacientes con implante de DAI sin o con resincronización cardíaca (TRC) durante entre febrero de 2003 hasta febrero de 2018. Se incluyeron pacientes que se realizaron neoimplante, upgrade o cambio de generador en nuestro centro, considerando como fecha de ingreso la fecha de implante del primer dispositivo. Se revisaron los registros clínicos de nuestro centro en búsqueda de variables demográficas e indicación de implante, cardiopatía de base, uso de terapia anti taquicardia (ATP), desfibrilaciones adecuadas o inadecuadas; uso de antiarrítmicos y estudio electrofisiológico. Se revisó la base de datos del Registro Civil para determinar la sobrevida de los pacientes durante el seguimiento, realizándose curvas de sobrevida de Kaplan Meier.

**Results:**

Se incluyó 421 pacientes, 311 fueron hombres (73.7%), edad promedio  $53.1 \pm 17.1$  años (13 a 85 años). Respecto del dispositivo implantado, 43% fueron DAI-DDD, 31% DAI-VVI, 26% DAI-TRC; 45% fueron indicados como prevención secundaria de MSC. Presentaron miocardiopatía dilatada no isquémica 31,9%; cardiopatía isquémica 27,9%; miocardiopatía hipertrófica 13,3%; canalopatías 6,4%; miocardiopatía arritmogénica 4,0%; TV idiopática u otras patologías 16.4%. Se realizó ablación del sustrato previo al implante en 12 pacientes. Hubo un seguimiento de  $4.85 \pm 3.62$  años (0.04 a 14,9 años), fallecieron 88 pacientes (21%). Un 23,7% utilizó ATP, 20% tuvo descargas (14.3% apropiadas; 7,4% inapropiadas). En 16 pacientes se consignó una tormenta eléctrica. El 80,1% recibió beta bloqueo, 41,3% anti arrítmicos clase III. Se realizó ablación del sustrato de arritmias ventriculares posterior al implante de DAI en 18 pacientes (4,3%). Dos pacientes evolucionaron con arritmias incontrolables y requirieron trasplante cardíaco. El análisis de Kaplan Meier señaló una sobrevida de 94,8%, 88,6% y 84,3% a los 1, 3 y 5 años de seguimiento, respectivamente (figura 1).

**Conclusions:**

Los resultados de este estudio muestran que la sobrevida en pacientes con alto riesgo de muerte súbita cardíaca tratados con DAI es muy buena, cercana a 85% a los 5 años. El uso complementario de fármacos antiarrítmicos y/o procedimientos de ablación del sustrato arritmogénico es frecuente.

**Sección:**

Ciencia básica / traslacional

**Tipo final:**

**Ficheros adjuntos:**

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FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

Cartagena 2018

**Autores:**

Valeria Acevedo , Patricia Alvarez , Patricia Aroca , Miguel ORyan , Patricia Rios , Rodrigo Nehgme

**Single-center experience in radiofrequency catheter ablation of tachyarrhythmias in children: 299 patients**

**Background/Introduction:**

Tachyarrhythmias are common in pediatric population and catheter ablation has become the definite treatment.

**Objectives:**

The purpose of our study is to describe our experience in catheter ablations performed in pediatric patients in our institution.

**Methods:**

From January 2004 to April 2018: 299 children with tachyarrhythmia were submitted to electrophysiology study. Retrospective analysis of clinical features, electrophysiology study and follow up were performed. The median age was 13 years (4 - 17 years), 51 % males, median weight 52 kgs (16 – 99 kgs). 92% (278/299) of the patients received antiarrhythmic therapy, 96% (267/278)  $\beta$ -blockers, 18% (51/278) flecainide and 5% (16/278) others. Patients were followed after the ablation between 5 months to 1 year.

**Results:**

326 electrophysiology studies were performed in 299 patients, 29 (8%) were normal. Ablation was performed in 85% (255/299) of the studies. We found 202 accessory pathway in 185 patients, 60% (123/202) were left. Atrioventricular nodal reentrant tachycardia (AVRT) was present in 63 (21%) studies, ventricular tachycardia (VT) in 13 (4%) and atrial reentrant tachycardia (ART) in 7 (2%). Global RF ablation success was 93% (214/228). Accessory pathway were successful overall in 93% (149/160) of ablations, 98% (103/105) in left and 83% (46/55) in right ( $p= 0.003$  Mantel-Haenszel with Yates correction). AVRT ablation was successful in 96% (49/51), VT in 63% (7/11) and ART in 80% (4/5). We had 8 (3%) minor complications: transitory atrioventricular block, arteriovenous fistula and femoral hematoma. No major complication was reported. The overall recurrence rate was 25/212 (11%), 13% in accessory pathway and 6 % in AVRT.

**Conclusions:**

The RF ablation is a safe and effective treatment for pediatric patients with tachyarrhythmia. In our cohort we had similar overall ablation success and recurrence rate as reported in literature.

**Sección:**

Electrofisiología Clínica y Ablación con Catéter

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FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

Teresa Garcia Botta , Gustavo Vera Janavel , Damian Azocar , Santiago Lynch , Agustina Gargano , Guadalupe Pagano , Raul Perez Etchepare , Pablo Stutzbach

**Smartphone-based ECG recorder: first Argentinian experience and cardiologist-aided performance**

**Background/Introduction:**

Smartphone-based ECG recorder (SMER) is a handy device for atrial fibrillation (AF) detection after acquiring a DI trace of the 12-lead standard ECG (ECGst). There is no experience with this technology in Latin America yet. Automatic result of SMER (A-SMER) could be similar to ECGst. Cardiologist-aid interpretation of SMER (C-SMER) may improve its performance.

**Objectives:**

To obtain initial experience with SMER and to assess AF diagnostic precision of A- and C-SMER vs ECGst.

**Methods:**

Patients requiring a routine ECGst (except acute coronary syndrome or hemodynamic instability) were included to conduct a prospective, simple-blinded study. Independent cardiologist ECGst reading was immediately followed by A-SMER for AF/atrial flutter detection. C-SMER was obtained from central tendency of 3 blinded, independent observers. Undetermined readings (UnR) were quantified for frequency comparisons (Yates' Chi<sup>2</sup>) and excluded for prevalence, sensitivity (Sn) and specificity (Sp) MedCalc computations and for Kappa/Burt concordance (K) and McNemar comparison between ECGst vs A- or C-SMER. Results are reported as percentages (95% Clopper-Pearson confidence intervals). Significance was set at  $p < 0.05$ .

**Results:**

We included 154 patients. UnR were more frequent in A- ( $n=27$ , 17.5%) than C-SMER ( $n=1$ , 0.7%;  $p < 0.001$ ). AF prevalence was 10.3% (5.6-17). A- and C-SMER had excellent agreement ( $K=0.96$  and  $K=1$ , respectively) and no difference vs ECGst ( $p=NS$ ). A-SMER had 92.3% (64-99.8) Sn and 98.2% (93.8-99.8) Sp. C-SMER had 100% (75.3-100) Sn and 97.4% (92.4-99.5) Sp. Out of 17 ECGst with AF, there were 4 A-SMER UnR and C-SMER corrected all of them. Out of 137 normal ECGst, there were 23 A-SMER UnR and C-SMER corrected 19 (82.6%), with 1 false positive result.

**Conclusions:**

Performance of A- and C-SMER are optimal, with similar Sn & Sp. However, A-SMER UnR precluded appropriate arrhythmia identification. C-SMER corrected most of A-SMER UnR, thus a new method based on cardiologist correction could enhance overall diagnostic precision.

**Sección:**

Electrocardiografía / Holter monitoring / Syncope

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November, 29 & 30

**Cartagena 2018**

**Autores:**

E González , JL Assad , C De la Peña , E Monroy , E Cardona , E Gardner , P Maguire , P Zei

**Stereotactic Ablative Radiotherapy for Treatment Refractory Ventricular Tachycardia.**

**Background/Introduction:**

Catheter ablation is a well-established therapy for patients with ventricular tachycardia. However, risks remain and improved efficacy is desired. Stereotactic ablative radiotherapy (SABR) is highly focused radiation therapy to treat malignancies. Recently, this technology has been evaluated for treatment of cardiac arrhythmias.

**Objectives:**

We report the first patient in Latin America that has been treated using this noninvasive technology.

**Methods:**

A 79-year-old man with an old inferior myocardial infarction, baseline ejection fraction of 0.18, with a dual-chamber implanted cardioverter defibrillator (ICD) for sustained ventricular tachycardia (VT). The patient had a history of two arrhythmic storm events in the previous year. The VT morphology was right bundle branch block pattern, superior axis and precordial transition at V4. We successfully tested ICD pacing atrial lead as tracking fiducial, then, PET-scan was performed to define myocardial necrosis area and left ventricular (LV) anatomy. Planning software was used to create a desired ablation volume encompassing entire myocardial inferobasal necrosis zone. A three-dimensional (3D) rendering of the LV was imported into the planning software associated with the treatment system. Then, patient was treated in the radioablation suite. Clinical follow up was performed at least 12 months after therapy.

**Results:**

Patient's target volume was able to be contoured and treated. No complications were seen both immediately and over the course of follow-up. The duration of treatment was 97 minutes. The planning target volume (PTV) was 46.5 cc, the CyberKnife treatment system delivered a total dose of 25 Gy in one fraction. 12 months since the procedure, the patient has only two separated slow VT events, successfully treated by ICD on lower-dose antiarrhythmic medication.

**Conclusions:**

Stereotactic radioablation therapy may be an effective and safe strategy for treatment drug refractory ventricular tachycardia.

**Sección:**

Ciencia básica / traslacional

**Tipo final:**



FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

**Cartagena 2018**

**Autores:**

Rita Ibarra Castillo , José Laso Bayas , Jorge Luis Arbaiza Simon

**Successful ablation of atrial flutter of the posterior isthmus, in a four-year-old patient, with only eleven kilograms of weight and arrhythmia-induced cardiomyopathy**

**Background/Introduction:**

Arrhythmia-Induced Cardiomyopathy (AIC) is an entity of uncertain prevalence in pediatric patients. Radiofrequency ablation (RFA) will always be challenging in pediatric patients even more in malnourished ones but in the context of AIC with life risk there are limited therapeutic options

**Objectives:**

The aim of this study is to describe the successful ablation of an atrial flutter (AFIa) of the posterior isthmus in a patient with malnutrition presenting with AIC obtaining complete recovery of the Left Ventricular Ejection Fraction (LVEF)

**Methods:**

A 4-year-old girl, just 11kg of weight with history of surgical closure of atrial septal defect and patent ductus arteriosus at one year of age presented with paroxysmal AFIa since the age of 2. When we knew her AFIa was persistent so she underwent to electrical cardioversion (CV) maintaining sinus rhythm for a few months. AFIa recurred but these time the patient presented with NYHA class III and a LVEF in 29%; new CV was performed with immediate normalization of LVEF. Weeks later after another recurrence of AIC with LVEF in 30% and NYHA class III, we decided to take her to EP study with 3D mapping. No fluoroscopy was used

**Results:**

Electrophysiological study was performed under general anesthesia. The navigation system patches had to be cut to fit the patient's anatomy. Decapolar catheters were positioned into the coronary sinus and the lateral wall of the right atrium; a quadripolar catheter was inserted for mapping. Once the anatomical model was made, activation and entrainment mapping were done determining the critical isthmus of the circuit between the inferior vena cava and the crista terminalis. During the first line of ablation the flutter reverted. One week after ablation the patient had LVEF in 51% and NYHA class I. During a 3 months follow-up sinus rhythm was maintained

**Conclusions:**

The approach of an AFIa with 3D electroanatomical mapping and zero fluoroscopy seems to be feasible safe and effective in young and low weight patients who develop AIC with life risk

**Sección:**

Reportes del caso

**Tipo final:**

**Ficheros adjuntos:**

[sofy\\_lahrs\\_1.jpg](#)



FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

**Cartagena 2018**

**Autores:**

G. Aurora Ruiz , Eliana Aversa , Martin Nogués , M. Cristina Tentori

**The head-up tilt test: Beyond the diagnosis of vasovagal syncope**

**Background/Introduction:**

Head-up tilt test (TT) is a method to diagnose vasovagal syncope (VVS). It has also been proposed to differentiate between VVS and other conditions such as epilepsies or unexplained falls. Besides, some TTs are requested in other cases without loss of consciousness to observe whether the symptoms have some hemodynamic component. Sometimes, the TT is not clearly positive but abnormal findings are detected.

**Objectives:**

To determine the prevalence of abnormal findings during the TT in patients (pts) with suspected but non confirmed syncope (SS) or non-syncopal episodes, and to compare it with pts having distinct syncope.

**Methods:**

Two thousand eight hundred fourteen consecutive TTs were analyzed. Pts were divided in 3 groups: 1) syncope pts (Sync), 2) pts with diagnosis of epilepsy, falls or TIA in whom syncope is suspected (SS) and 3) pts without syncope (No-Sync, dizziness, etc). TTs results were classified as follows: 1) TT positive (+) or negative (-) for VVS, 2) Abnormal findings: a) Symptoms without hemodynamic correlation (S), b) Hemodynamic alteration without symptoms (H) and c) Symptoms with hemodynamic correlation. The prevalence of abnormal findings is expressed as a percentage of population without (+) TT.

**Results:**

Indication	(+) TT (%)	S (%)	H(%)	SH (%)	Total abnormal findings
Sync. n:2028	20	11	11.5	3	30
SS n:145	7.5**	12	12	1.3	25
Epilepsy (n: 59)	12	17	4	0	21
Falls (n:81)	6**	10.5	2.6*	18***	31
TIA	0	0	20	0	20
NO Sync n: 641	13***	13	13	2	28
Dizziness (n:285)	13**	10	18*	1.2	29
Pre-sync (n:266)	17	18.5	7	2.7	28
Others (n:90)	3**	8	13.7	2	24

Sync vs other groups. Chi 2 : \*p<.05, \*\*p<.005, \*\*\*p<.0005

**Conclusions:**

- 1) The prevalence of (+) TT is similar in pts with syncope, pre-syncope or previous diagnosis of epilepsy. In the other groups is significantly lower.
- 2) Prevalence of symptoms with hemodynamic correlation is larger in pts with unexplained falls
- 3) More than a fourth of the population without a (+) TT shows abnormal findings during the test. Its diagnostic value has yet to be determined.

**Sección:**

Electrocardiografía / Holter monitoring / Syncope

**Tipo final:**



FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

**Cartagena 2018**

**Autores:**

Valeria Acevedo , Patricia Aroca , Patricia Alvarez , Gilberto Palominos , Vicente Montes , Rodrigo Nehgme

**Twenty years of experience in a single center in permanent pacemaker implantation in Congenital Complete Atrioventricular Block under three months of age.**

**Background/Introduction:**

**Objectives:**

**Objective:** Describe the pacemaker treatment and its follow-up in patients with congenital complete atrioventricular block (CAVB), under three months of age, in a single center.

**Methods:**

**Methods:** retrospective study, patients with congenital CAVB and pacemaker implant younger than three months of age, over the last twenty years (June 1998 - Agosto 2018). Data was collected from our medical records.

**Results:**

**Results:** 33 infants were analyzed, 19 males. Median age was 3 days (1 – 89 days) and median weight was 3 kgs. (1,8 - 5,0 kgs) at time of implantation. Seven out of 33 weighed less than 2,5 kgs. 30 (90%) were newborns, 7 preterm births. Prenatal diagnostic was achieved in 18 (54%). Maternal history of autoimmune disease in 17 infants (52%). The average heart rate before implantation was 53 bpm (35-70 bpm). Three of 33 patients had Long QT syndrome, six patients had congenital heart disease (3 isolated ventricular septal defect, 2 L-isomerism and 1 pulmonary valve stenosis). Eight (24%) patients had left ventricular (LV) dysfunction at diagnosis. The pacemakers were VVI in 31 infants and DDD in 2. All placed leads were epicardial (23 in right ventricle and 10 in left ventricle). Six patients (18%) had complications: 4 infections, 1 lead dysfunction and 1 pacemaker migration. One patient died three days after implantation due refractory heart failure. The average time of follow up was 8 years (15 days–16 years). All patient are in good clinical status and normal left ventricular function after the implanted pacemakers, except for one girl who six years later, developed LV dyssynchrony and secondary dilated cardiomyopathy. She was successfully treated with cardiac resynchronization therapy. One patient died suddenly at age seven due to lead fracture.

**Conclusions:**

**Conclusions:** Pacemaker implants in small infants was a successful CAVB treatment in our center, with low mortality rates and complications. We attribute these positive results to early diagnosis, appropriate therapy and close follow-up.

**Sección:**

Dispositivos Electrónicos Implantables Cardiovasculares

**Tipo final:**



FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

**Cartagena 2018**

**Autores:**

Rita Ibarra Castillo , José Laso Bayas , Jorge Luis Arbaiza Simon

**Upper septal idiopathic ventricular tachycardia: Case report**

**Background/Introduction:**

Upper septal fascicular idiopathic left ventricular tachycardia (USVT) is very rare accounting the 6% of the idiopathic left ventricular tachycardias (VT). Its mechanism is an orthodromic reentrant circuit incorporating the Purkinje system amenable for radiofrequency ablation (RFA).

**Objectives:**

We sought to share the ablation strategy for this unique VT.

**Methods:**

A 49 year-old man presented with recurrent tachycardias triggered by a febrile illness. He had palpitations 4 years ago when underwent RFA. Now, he showed a narrow QRS tachycardia with right axis deviation, without structural heart disease. He was referred to a new electrophysiologic study and mapping performed with a 4-mm tip ablation catheter via a retrograde aortic approach. An electroanatomic navigator was used to tag critical sites. Induction of VT was achieved with incremental atrial stimulation during administration of atropine bolus and epinefrine 0.02 mcg/kg/min.

**Results:**

HV interval was 65 ms in sinus rhythm (SR) and 55 during VT. With the catheter along the septum we observed during SR that the conduction propagated antegradely generating a pre-systolic potential recorded after the His potential and before the onset of the QRS, suggesting a left posterior fascicle (FP). During USVT, a diastolic potential (DP) from a septal fascicle was recorded earlier from the distal than from the proximal electrodes, whereas FP had the inverse sequence, equal of that in SR. The ablation catheter was positioned at the upper septum where the DP preceded the onset of the QRS by 35 ms and RFA reverted VT. The patient has been asymptomatic during 11 months.

**Conclusions:**

USVT often presents as a narrow QRS complex tachycardia. It uses the posterior fascicle as the anterograde limb of the circuit and the septal fascicle as the retrograde limb. The diagnosis relies on the recording of the His bundle potential before the onset of QRS, with an HV shorter in VT than in SR. RFA can be performed successfully by targeting the DP preceding the QRS in the upper septum.

**Sección:**

Reportes del caso

**Tipo final:**

**Ficheros adjuntos:**

[Electrograms recorded during SR and VT, showing the sequences of FP and DP.](#)



FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

**Cartagena 2018**

**Autores:**

Juan Carlos Diaz , Jorge Romero , Julian Aristizabal , Jorge Eduardo Marin , Jorge Enrique Velasquez , William Uribe , Mauricio Duque

**Use of 3D mapping to identify the course of coronary arteries during epicardial ablation: case report**

**Background/Introduction:**

Epicardial ablation is increasingly used to treat ventricular arrhythmias. To avoid inadvertent injury to the coronary arteries, angiography is usually performed. Nonetheless, these images cannot be incorporated in the 3D mapping systems and as such give limited information during the procedure.

**Objectives:**

To report the use of 3D mapping of the coronary arteries during an epicardial ablation procedure.

**Methods:**

**Results:**

A 44 year-old male with Brugada syndrome presented was scheduled for endocardial/epicardial ablation after recurrent defibrillator shocks despite treatment with quinidine. The procedure was performed under general anesthesia; epicardial access was obtained through a standard anterior subxyphoid approach. Afterwards, right femoral arterial access was obtained, and a JL 4 catheter was advanced into the left coronary artery ostium. A 0.014" guidewire was advanced to the distal left anterior descending artery. The proximal end of the guidewire was connected using a disposable DF-4 threshold cable: the active bipole to the 3D mapping system and the neutral bipole to the patient's leg using an adhesive ECG electrode. Once identified by the mapping system, the guidewire was repeatedly retrieved and advanced (slowly) to create a 3D map of the artery. This process was repeated with the left circumflex and right coronary arteries (in the right coronary artery a JR catheter was used to cannulate the right coronary ostium), allowing for the creation of a 3D map of the coronary anatomy. Afterwards, endocardial/epicardial mapping and ablation was performed uneventfully.

**Conclusions:**

Three dimensional mapping of the coronary arteries is feasible and easily achieved, providing valuable information during epicardial mapping and ablation.

**Sección:**

Reportes del caso

**Tipo final:**

**Ficheros adjuntos:**

[foto\\_coronarias.jpg](#)



FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

**Cartagena 2018**

**Autores:**

Daniela Delgado , Serrano Diego , Karol Guzman , Juan Vintimilla , Carlos Ortega , David Puga , Javier Ruiz

**Use of radiofrequency catheter ablation of septal hypertrophy in a patient with hypertrophic obstructive cardiomyopathy symptomatic.**

**Background/Introduction:**

Hypertrophic obstructive cardiomyopathy (HOCM) is a genetic disease. A left ventricular outflow tract (LVOT) can cause symptoms and be responsible for sudden death. Alcohol septal ablation (ASA) and myectomy are therapeutic alternatives. However, the anatomical variability of the septal branch, risk of complete heart block, and late onset ventricular arrhythmias are limitations to its therapeutic usage. There is recent interest in the use of radiofrequency catheter ablation (RFCA) as a therapeutic option. Recent studies have demonstrated that RFCA of the hypertrophied septum is effective and safety in reducing LVOT gradients by the mechanism of discrete septal hypokinesia, better control of location an extension of injury by means of electro anatomical mapping.

**Objectives:**

Use of radiofrequency catheter ablation in a patient with hypertrophic obstructive cardiomyopathy symptomatic, despite optimal medical treatment, as a therapeutic alternative to the non-surgical (Alcohol septal ablation /Myectomy).

**Methods:**

A 52 year old man, III NYHA class, with significant left ventricular outflow tract (LVOT) gradient despite optimal drug therapy (calcium antagonist, beta blockers), cardio defibrillator implant, not suitable to ASA/myectomy, underwent ablation of the hypertrophied interventricular septum. Ablation was performed under 3D electro-anatomical system guidance using an open irrigated tip catheter. The region of maximal LV septal bulge as seen on intracardiac echocardiography was targeted. Patient was followed up at 1 month post-procedure and appointments in the next months.

**Results:**

The mean baseline LVOT gradient by Doppler echocardiography was 81 mmHg which reduced to 59mmHg (27% less); at 1 month. Symptoms improved at least by I NYHA class.

**Conclusions:**

RFCA of the hypertrophied septum causes sustained reduction in the LVOT gradient, avoidance of collateral damage to conduction system as well symptomatic improvement among patients with HOCM. This procedure helps to perform the procedure safely.

**Sección:**

Electrofisiología Clínica y Ablación con Catéter

**Tipo final:**



FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

**Cartagena 2018**

**Autores:**

DIEGO SERRANO , DANIELA DELGADO , KAROL GUZMAN , JUAN VINTIMILLA , CARLOS ORTEGA , DAVID PUGA , JAVIER RUIZ

**Use of radiofrequency catheter ablation of septal hypertrophy in a patient with hypertrophic obstructive cardiomyopathy symptomatic.**

**Background/Introduction:**

Use of radiofrequency catheter ablation of septal hypertrophy in a symptomatic patient with hypertrophic obstructive cardiomyopathy, despite optimal medical treatment, as a therapeutic alternative to the non-surgical (Alcohol septal ablation/Myectomy).

**Objectives:**

Hypertrophic obstructive cardiomyopathy (HOCM) is a genetic disease. A left ventricular outflow tract (LVTO) can cause symptoms and be responsible for sudden death. Alcohol septal ablation (ASA) and surgical myectomy are therapeutic alternatives. However, the anatomical variability of the septal branch, risk of complete heart block, and late onset ventricular arrhythmias are limitations to its therapeutic usage. There is recent interest in the use of radiofrequency catheter ablation (RFCA) as a therapeutic option. Recent studies have demonstrated that RFCA is effective and safety in reducing LVOT gradients by the mechanism of discrete septal hypokinesia, better control of location an extension of injury by means of electro anatomical mapping.

**Methods:**

A 52 year old man, III NYHA class, with significant left ventricular outflow tract (LVOT) gradient despite optimal drug therapy (calcium antagonist, beta blockers), cardio defibrillator implant, not suitable to ASA/myectomy, underwent ablation of the hypertrophied interventricular septum. Ablation was performed under 3D electro-anatomical system guidance using an open irrigated tip catheter. The region of maximal LV septal bulge as seen on intracardiac echocardiography was targeted. Patient was followed up at 1 month post-procedure and appointments in the next months.

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**Conclusions:**

RFCA of the hypertrophied septum causes sustained reduction in the LVOT gradient, avoidance of collateral damage to conduction system as well symptomatic improvement among patients with HOCM. This procedure helps to perform the procedure safely and effective.

**Sección:**

Electrofisiología Clínica y Ablación con Catéter

**Tipo final:**

**Ficheros adjuntos:**

[radiofrequency catheter ablation of septal hypertrophy in a patient with hypertrophic obstructive cardiomyopathy symptomatic.pdf](#)



FIRST SCIENTIFIC SESSIONS

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November, 29 & 30

**Cartagena 2018**

**Autores:**

Andrea Lui , Fernando Verdugo , Carlos Piedra , Marianella Seguel , Rodulfo Oyarún , Mauricio Moreno , EUs Loretto Pizarro , Cecilia Herrera

## **USO DE ALGORITMOS DE LOCALIZACION CON PRE-EXCITACIÓN MÁXIMA VERSUS BASAL EN LA PREDICCIÓN DE LA UBICACION DE HACES PARAESPECIFICOS DERECHOS**

**Background/Introduction:**

El uso de algoritmos para localizar el haz paraespecífico (HPE) permite orientar la estrategia de ablación. La precisión de algoritmos que utilizan electrocardiograma (ECG) basal puede verse afectada por la influencia variable de la activación del HPE sobre la morfología del QRS. Adicionalmente, se ha reportado menor sensibilidad para la localización de HPE derechos en comparación con HPE izquierdos. Estas limitaciones podría ser superadas durante pre-excitación máxima mediante estimulación auricular en el estudio electrofisiológico (EEF).

**Objectives:**

Comparar la precisión de dos algoritmos validados para localización de HPE derechos durante pre-excitación basal y máxima.

**Methods:**

Estudio retrospectivo en pacientes derivados para EEF. Se incluyeron pacientes con HPE manifiesto en ECG basal y ablación efectiva. Se excluyeron pacientes con ablación previa, HPE izquierdos (lateral izquierdo, posterolateral izquierdo o posteroseptal izquierdo), múltiples u ocultos. Se analizaron ECG durante pre-excitación basal y máxima, utilizando en ambos contextos los algoritmos descritos por Arruda et al (J Cardiovasc Electrophysiol 1998), y Pambrun et al (JACC Clin Electrophysiol 2018). Se comparó la precisión de los algoritmos, en base a la ubicación exacta del HPE determinada por EEF mediante Chi cuadrado y Fischer exact test. Se evaluó la presencia de discordancia entre algoritmos con pre-excitación basal y máxima, comparándose la duración del intervalo PR y QRS entre discordantes y concordantes mediante prueba t-student. Se consideró significativo un valor de  $p < 0.05$ .

**Results:**

Se identificaron 59 pacientes que cumplieron criterios para el estudio. Presentaron un intervalo PR  $89,9 \pm 15,8$  ms y QRS de  $132,3 \pm 18,7$  ms durante pre-excitación basal. En la tabla se muestra la precisión de los algoritmos en pre-excitación basal y máxima.

El algoritmo de Pambrun mejoró su precisión diagnóstica total durante pre-excitación máxima en comparación con pre-excitación basal ( $p < 0.05$ ), sin evidenciarse diferencias significativas por ubicación. El algoritmo de Arruda no presentó diferencias en su precisión diagnóstica al aplicarse con pre-excitación máxima o basal ( $p > 0,05$ ). Hubo discordancias de localización propuesta en pre-excitación basal y máxima en 14 casos con Arruda y 14 casos con Pambrun. No se evidenciaron diferencias en la duración del intervalo PR o QRS con el algoritmo de Arruda

**Conclusions:**

La pre-excitación máxima durante el EEF permite mejorar la precisión diagnóstica en la localización de HPE derechos mediante el algoritmo de Pambrun. Se requiere un mayor número de pacientes para definir mejor la utilidad de ambos algoritmos durante pre-excitación máxima.

**Sección:**

Ciencia básica / traslacional

**Tipo final:**

**Ficheros adjuntos:**

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FIRST SCIENTIFIC SESSIONS

of the **Latin American Heart Rhythm Society**

November, 29 & 30

**Cartagena 2018**

**Autores:**

Carolina Valenzuela Botero , Eduardo Ramirez Vallejo , Oscar Henao Gallo , Andres Paolo Castaño , Carlos Ruiz Villa

**Wavefront variability reentry in ischemia inferolateral simulated in human heart left ventricle**

**Background/Introduction:**

Recent studies demonstrated the existence of heterogeneity in the common ventricular myocardium with the presence of at least three cell types: the epicardial cells, the Endocardial and the M-cells, which differ essentially in the repolarization phase. Ischemic inferolateral lesion are encounter shot lethally arrhythmias for reentry patterns. Your vulnerability window are not suffice studied in human heart.

**Objectives:**

In this work, we modeled an ischemic injury left inferolateral in human heart reconstrued for study reentry pattern in ischemic lesion.

**Methods:**

The modeling strategy uses a cell math of the ten-Tusher 2006 for issue of electric component of ionic fluxes. The ischemic model uses gradient of extracellular potassium, ADP-ATP concentration and pH-acidosis development for henao 2007. This model biophysical simulate the behavior electric of these cells using for modeling sodium, potassium, calcium currents and including a humanized version of potassium dependent ATP current. Likewise, vectors of depolarization and repolarization with EGCSIM are modeled, to left inferolateral ischemic injury. Finally, an anatomical model of human heart based in imaging of patient are reconstrued, the ischemic zone intro epicardium inferior involving intramural tissue in the human left ventricle.

**Results:**

We obtained the alterations for modeling different compound of ischemia. The analysis of depolarization-repolarization vecto-cardiogram and yours ECGs twelve derivation are analyzed. The vulnerability of reentry are calculated in terms for elevated extracellular potassium and the time windows for stimulation protocol. Finally eight figure reentry pattern and spiral rotation are obtains intro the lesion analyzed.

**Conclusions:**

This modeling approach, we permit study pattern ischemia in inferolateral lesion of human modeling heart. The vulnerability window of reentry are multivariate factor inducing for settling ischemic conditions. The reentry pattern show rotational dynamic intro the lesion area considered.

**Sección:**

Ciencia básica / traslacional

**Tipo final:**