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Is chagas heart disease associated to a higher mortality at one year after cardiac resynchronization therapy implant?

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Background: Cardiac resynchronization therapy (CRT) is an established therapeutic modality for patients with heart failure (HF). Evidence for the effectiveness of CRT for event reduction is based on clinical trials where the population of patients with Chagas disease (CD) is underrepresented. The present study aims to evaluate the prognosis after CRT in a population where CD is an endemic cause of HF.
Methods: A prospective cohort study started in March 2015 in a tertiary hospital. Patients with HF referred for CRT were included. Patients also must be older than 18 years and had a left ventricular ejection fraction (LVEF) of less than 35%. The combined outcome of death or hospitalization for decompensated heart failure was evaluated.
Results: A total of 57 patients were evaluated of which 33 (57.9%) were male, with a mean age of 62.3 (±12.1) years. The most frequent HF etiology was CD with 13 (22.8%), ischemic 13 (22.8%), and idiopathic 13 (22.8%). The mean LVEF was 26.2 (±6.0) and 39 (68.4%) patients were in NYHA III or IV. At the mean follow-up of 1.4 years, the combined outcome of death or hospitalization for decompensated HF was more frequent in HF due to CD: 7 (53.8%) than other HF etiologies: 7 (15.9%), $p = 0.01$. Other possible predictors of the combined endpoint in the univariate analysis ($p < 0.1$) were included for logistic regression. After the multivariate analysis, remained as independent risk factors for the combined outcomes: Chagas disease ($p = 0.007$) and a LVEF of less than 25% ($p = 0.03$).
Conclusion: In a population of patients with heart failure and indication for CRT, Chagas disease was independently associated with mortality and hospitalization for heart failure in the mean follow-up of 1.4 years.

ATRIAL FIBRILLATION ABLATION - MECHANISMS AND OUTCOMES

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How to improve the success of atrial fibrillation ablation. Evaluation of cardiac magnetic resonance and fractionated electrograms in first ablation procedures

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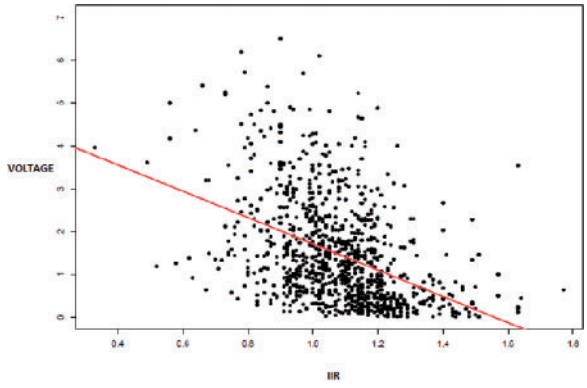
Introduction: Cardiac magnetic resonance (CMR) and late gadolinium enhancement (LGE) sequence have been introduced in some centers as a complement to electro-anatomical mapping systems, showing possible pathological fibrotic substrate. Different studies have attempted to compare the CMR with the current gold standard in the guide of ablation, the voltage mapping. Actual data is still contradictory, probably in relation to the lack of standardized methods. Fractionated electrograms (fEGM) in sinus rhythm (RS) are used as an ablation target in ventricular tissue but in atrium its significance is still unknown. Evaluation of fEGM as a new target in AF could be useful in order to improve the success rate of the procedure.
Purpose: Validate the CMR as a guide in the ablation of FA with the correlation between LGE and voltage and its relation with the fEGM, as well as the characteristics of the same.
Methods: A total of 10 consecutive patients who undertook a first ablation procedure after obtaining a CMR were included. The CMR-LGE has been analyzed and processed using ADAS software. The left atrium (LA) was segmented and a 3D model was created. Three areas have been established depending on the enhancement intensity normalized by the blood pool (IIR) of each patient as we have presented in previous studies (healthy <1.20, borderzone (BZ) ≥1.20 <1.32 and scar ≥1.32)
The voltage mapping has been analyzed point by point with the hallmark of the fEGM (≥5 deflections, ≥50ms). This marked mapping has been projected automatically to the 3D CMR model of the LA, subdivided in 12 anatomical regions. It has been obtained automatically correlation between the voltage, the LGE and the localization of each fEGM.
Results: With statistical models from repeated measures, a significant difference ($p<0.001$) in the voltage (mV) of the three areas (healthy 1.81, BZ 0.90 and scar 0.56) has been obtained. In addition there is a significant inverse correlation ($p<0.001$) between voltage and IIR with R= -44. On the other hand, significant differences ($p<0.001$) in the number of fEGM in the different zones have been show (healthy 171 (96%), BZ 7 (4%) and scar 0 (0%). There have also been significant voltage (mV) differences ($p <0.001$) between non-FEGM (1.64) and FEGM (0.54). No differences have been obtained between paroxysmal and non-paroxysmal AF.
Conclusions: In our analisis, correlation between the voltage mapping and the LGE sequence has been evinced, suggesting the CMR as a probably valid tool in the guide of the AF ablation.
FEGMs have appeared in the healthy area in the CMR. Its meaning persists controversial and future studies will be necessary.



Abstract P826 Figure. Correlation Voltage-IIR

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Left atrial low voltage areas predict the outcome after laser balloon pulmonary vein isolation

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Background: Left atrial low voltage areas (LA LVA) was suggested as a predictor of atrial tachyarrhythmia (ATa) recurrence after pulmonary vein isolation (PVI) using conventional radiofrequency current (RF). However, it remains unclear, whether the presence of a LA LVA also affects the outcome after laser balloon (LB) PVI.
Purpose: To prospectively evaluate the effectiveness of LB PVI in patients with and without LV LVA.
Methods: Between 11/2016 and 4/2017, 100 consecutive AF patients were ablated (paroxysmal/persistent AF; 65/35 patients). Using 3-dimensional mapping (CARTO) LA voltage maps were created in sinus rhythm. LVA was defined as local bipolar voltage of <0.5 mV. The total LVA surface area was calculated. The time interval from the beginning of the p wave in lead II to the local activation in the left atrial appendage (time-to LAA; TTLAA) as well as total p-wave duration (PWD) was assessed. Complete PVI was the endpoint of all index procedures. Patients were followed up for 12 months using 72h Holter monitoring at 3, 6 and 12 months.
Results: Five patients were excluded from the analysis as LVA was not assessed for technical reasons. Mean age was 66±8years, 57% were male, 67% had paroxysmal AF and mean LA size was 39±5mm. LA LVA was present in 21/95 (22%) patients. The TTLAA (111±26 vs 81±16 ms, $P = 0.001$) and the PWD (133±20 vs 117±17 ms; $P = 0.002$) were longer in the LVA group. Larger LA surface area/ volume were found in the LVA group (all, $P<0.05$) and LVA area correlated statistically with TTLAA and PWD ($r = 0.39$, $P < 0.001$, $r = 0.61$, $P<0.01$, respectively).
Electrical PVI was achieved in 94/95 patients. The mean procedure time, mean fluoro scopic time and mean dose area product were 104±29 minutes, 9.6±4.3 minutes, and 840±597 μGym2, respectively. 1 cerebral infarction, 1 cardiac tamponade, 1 groin pseudoaneurysm and 2 phrenic nerve paralysis occurred as peri-procedural complications.
During follow-up, the incidence of ATa recurrence was significantly higher in the LVA group (12/ 21 patients (57%) vs 11/ 74 patients (15%); log rank, $P < 0.001$). Multivariate logistic regression analysis identified LA LVA as the only independent predictor of ATa recurrence (OR 7.57, 95% confidence interval 1.5- 37.8, $P = 0.014$).
Conclusion: LB PVI in patients with LVA was associated with poorer outcome. Patients may be identified by surface ECG criteria (PWD) and or intracardiac mapping (TTLAA).

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Quantitative assessment of left atrial fibrosis in patients with paroxysmal atrial fibrillation using high density Confidense mapping

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Introduction: Left atrial fibrosis is associated with the pathogenesis and progression of atrial fibrillation (AF). Recent studies have demonstrated the value of high density electroanatomical mapping (EAM) to identify left atrial scar areas.
Purpose: The aim of this study was to evaluate the extent of left atrium (LA) low voltage areas in patients with paroxysmal AF (PAF) undergoing catheter ablation (CA) by using high density Confidense mapping module integrated in the Carto 3 EAM system. With the Tissue Proximity Indicator (TPI) feature the system is able to recognize catheter proximity to the tissue using an impedance-based algorithm. Our hypothesis is that the TPI provides a more precise representation of LA low voltage areas than points acquired without TPI.
Methods: We prospectively enrolled 73 patients with PAF who underwent pulmonary vein antral isolation (PVAI). Demographic and clinical characteristics of the patients are shown in table 1. Before PVAI two different dense LA shells were created using a