Treatment with ACEI (OR=6.13, p=0.09) and HTA (OR=2.62, p = 0.06) tend to be positively associated with ARF while a contrast dose above 80 mL tends to be negatively associated (OR=0.24, p = 0.08).
High dose of contrast administration was associated with low Cl Cr (spearman correlation coefficient=-0.19, p < 0.03) and decrease of Hb (-1.21, p < 0.02).

Conclusion: Acute renal failure is a frequent and severe complication after CRT implantation. Careful pre and post implantation management is required. Mechanism seems more complex than a contrast induced nephropathy.

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Long term follow-up of patient implanted with ICD before 2000

Pierre Mondoly, M Rezai, A Duparc, A Rollin, Aurélien Hébrard, N Detis, T Chilon, Ph Maury, M Delay, Didier Carrié
CHU Rangueil, Cardiovascular and Metabolic Pole, Toulouse, France

Background: ICD is an effective treatment to prevent SCD but very long term follow-up is poorly known

Methods: We retrospectively studied the 67 patients implanted with an ICD at the University Hospital of Toulouse between 1989 and 1999.

Results: Characteristics of the population are (number of patients): males: 56, ischemic heart disease (IHD): 42, mean EF 42%, secondary prevention: 62, abdominal implantation: 30, dual chamber devices: 57. Data were complete for 58 patients (mean follow-up: 100 months +/- 103), nine patients were lost to follow up (mean 52 +/- 40 months). Survival rate (of the 58 patients) is respectively 93%, 71% and 48% at 1, 5 and 10 years. Cause of death was cardiac for 10 patients (7 terminal cardiac failures, 2 sudden cardiac deaths and 1 endocarditis), extra cardiac for 7 patients and unknown for 13.
Independent factors of global mortality are: age (p=0.038), IHD (p=0.035), NYHA > 2 (p=0.0058), EF < 35% (p=0.0005). 37 patients experienced appropriate ICD therapy, 13 of them suffered an electrical storm. 18 patients presented with inappropriate therapy (oversensing: 44%, supra ventricular tachycardia: 39%). Non rhythmic complications occurred in 27 patients (infections: 4, ICD lead related complications: 7, delay of healing or haematoma: 12).

Conclusion: Patients implanted with ICD before 2000 remain at high risk of mortality and morbidity.

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Prevention of unnecessary ventricular pacing with the IRS Plus algorithm

Gilles Lascault (1), Xavier Dessenne (2), Olivier Bizeau (3), Pierre Khattar (4), Jean-Philippe Elkaïm (5), Marc Andrieu (6)
(1) Centre Cardiologique du Nord, Rythmologie, Saint Denis, France - (2) Clinique du Mousseau, Cardiologie, Evry, France - (3) Centre Hospitalier Régional, Cardiologie et maladies cardiovasculaires, Orléans, France - (4) Centre Hospitalier de Bretagne Sud, Cardiologie, Lorient, France - (5) Centre Hospitalier de Douarnenez, Cardiologie, Douarnenez, France - (6) Cabinet de Cardiologie, Rodez, France

Purpose: Chronic right ventricular pacing (VP) has been linked to deleterious effect on cardiac function. This registry was designed to quantify the efficacy of Intrinsic Rhythm Support algorithm (IRS Plus), aimed to minimize VP.

Methods: Patients (pts) were prospectively included 1 to 3 months after PM implantation and had IRS Plus set on. Device statistics were collected after 6 months of FU.

Results: Preliminary results have been obtained in 158 pts (mean age 78±9 years, 55% male). Median VP% was 3.9 in pts with SND vs 25.3 in pts presenting an impaired AV conduction (p=0.024). The median VP% was 4.2 in pts with normal baseline PR interval vs 39.5 in pts with prolonged (>200 ms) PR interval (p<0.0001). AF burden was significantly lower in pts with VP% less or equal to 10% (0.4% vs 4.2%, p=0.026).

Conclusion: IRS Plus reduces unnecessary VP, especially in pts with pure SND. Avoiding VP appears to decrease AF burden.

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Recall alerts in implantable cardioverter-defibrillator recipients : implications for patients and physicians

Jérôme Schwartz, Hugues Blangy, Pierre-Yves Zinzius, Luc Freysz, Etienne Aliot, Nicolas Sadoul
CHU Nancy-Brabois, Département de cardiologie, Vandoeuvre Les Nancy, France

Backgrounds: Implantable cardioverter-defibrillator (ICD) malfunctions sometimes need recall. Despite the increasing number of device implantation, ICD recalls and advisories' impacts have been little studied. The aim of this study was to determine the rate of ICD generator advisory in our center and to examine its clinical and financial implication.

Methods: We analyzed weekly FDA Enforcement Reports issued between January 2000 and December 2008 to identify all advisories involving ICD generators and leads. We performed a retrospective analysis of all implanted patients affected by an advisory in our Cardiology department.

Results: During the 8 years of the study period, 13 advisories were issued for generators and 1 for leads, leading to a total number of 278/1051 (26.4%) device with recall alerts, divided into 196 generator failures and 82 lead failures. Premature generator replacement was performed in 11 patients whereas 9 patients underwent lead replacement. There was no major complications attributable to advisory device replacement, and minor complications occurred only in 1 patient (lead extraction failure). Recalls accounted for 593 extra outpatient visits with a mean number of 2.20 ± 2.19 per patient. The total estimated cost of the device advisories in our population was 334 528 ı.

Conclusions: ICD recalls and safety alerts frequently occur in ICD recipients and tend to increase in number and rate. Although potentially serious, they are not associated with substantial complications. Financial implications are important.

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Is it a risk of stroke in Wolff Parkinson White syndrome?

Béatrice Brembilla-Perrot, Julien Delobelle, Pierre Yves Zinzius, Soumaya Jarmouni, Raphaël Pedro Martins, Jérôme Schwartz, Lucian Muresan, Ibrahim Nossier, Céline Olivier Kazmierczak, Jean Marc Sellal, Rouzbeh Valizadeh-Moejezi, Laurent Groben, Clément Tatar, Olivier Selton, Pierre Louis, Daniel Beurrier, Arnaud Terrier De La Chaise
CHU of Brabois, Cardiology, Vandoeuvre Les Nancy, France

Atrial fibrillation (AF) is a major cause of stroke. AF incidence is increased in Wolff-Parkinson-White syndrome (WPW), represents about 10 % of spontaneous arrhythmias and has several mechanisms as the degeneration of atrioventricular reentrant tachycardia (AVRT) into AF, the AF facilitation by the atrial insertion of accessory pathway (AP) or another origin. The purpose of study was to assess the incidence of stroke in patients (pts) who had a preexcitation syndrome.

Population: 707 pts aged from 5 to 85 years (mean 34.5±17) were studied for a WPW: 93 pts had unexplained syncope; 247 pts were asymptomatic; 367 pts had spontaneous tachycardias; among these pts 52 had documented AF. Electrophysiological study (EPS) consisted of atrial pacing and programmed atrial stimulation in control state and if necessary after infusion of isoproterenol. Clinical and electrophysiological data were collected.

Results: Stroke was noted in 5 pts (0.7 %), 2 women, 3 men aged from 53 to 75 years. They had a normal carotid and transcranial Doppler ultrasonography. One pt had ischemic heart disease and the remaining pts had no heart disease. Their age was significantly older than remaining population (62±9 years vs 34± 17) (p<0.0002). Only one pt had spontaneous AF; 51 other pts with spontaneous AF had no stroke. One of 247 was asymptomatic; one pt of 93 had syncope and 2 pts of 315 had spontaneous AVRT. At EPS, one asymptomatic pt had AP with long refractory period and no inducible tachycardia. Two pts with spontaneous tachycardias had only inducible AVRT and the pt with spontaneous AF had inducible antidromic tachycardia and AF. The pt with syncope had only inducible AF. These electrophysiological data did not differ from the remaining population. Anticoagulants were maintained after AP ablation, although the disappearance of arrhythmias.

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Conclusions: The risk of stroke in WPW syndrome is very low (0.7 %). Only one clinical factor differs significantly from remaining population, the relatively old age (mean 62±9 years). All other clinical factors as sex, associated heart disease, spontaneous symptoms and all electrophysiological data did not differ from remaining population.

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Identification of electrophysiological substrate for ventricular arrhythmias in patients with repaired tetralogy of Fallot.

Maxime De Guillebon (1), Frederic Sacher (2), Nicolas Derval (2), Pierre Bordachar (2), Xavier Iriart (1), Philippe Ritter (2), Meleze Hocini (2), Pierre Jais (2), Michel Haissaguerre (2), Jean-Benoît Thambo (1)
(1) Hôpital Cardiologique Haut Lévêque, Service du Pr Thambo, Pessac, France - (2) Hôpital Haut Lévêque, Rythmologie, Pessac, France

Introduction: Patients with repaired tetralogy of Fallot (TOF) represent a new category of patients referred to electrophysiology laboratory for ventricular arrhythmia (VA) mapping and ablation. Different anatomical regions have been identified as potentially responsible for reentry: ventricular septal defect (VSD) patch, surgical incisions, right ventricular outflow tract (RVOT) patch. We aimed to investigate electrophysiological substrate responsible for potential VA in patients with repaired TOF.

Methods: All patients with repaired TOF referred to the CHU de Bordeaux for VA evaluation from January 2008 to april 2010 underwent right ventricular (RV) 3D mapping. Sinus activation and voltage mapping was then performed before VA induction ± ablation.

Results: 7 patients (4 male, 42,5 ± 12 years old) underwent RV mapping during VA evaluation. Surgical repair of TOF had been realized 36 ± 11 years before the procedure. All patients displayed a right bundle branch block on 12 lead electrocardiogram.

Sinus rhythm RV activation begins in all patients in the septum and then activates the RV centrifugally with a zone of slow conduction with a double potential (100 ± 30 ms) going from the tricuspid annulus (TA) to the RVOT. Voltage maps (figure) show systematically the same pattern of a zone of low voltage (< 1.5 mV) due to the VSD repair close to the RVOT scar area. This area fits with the slow conduction area. In the 2 patients with sustained ventricular tachycardia (VT), critical isthmus was located in this area.

Conclusions: Specific activation and voltage pattern was found in these Fallot patients. In the 2 patients with sustained VT, the critical isthmus was found between VSD repair patch and RVOT scar.
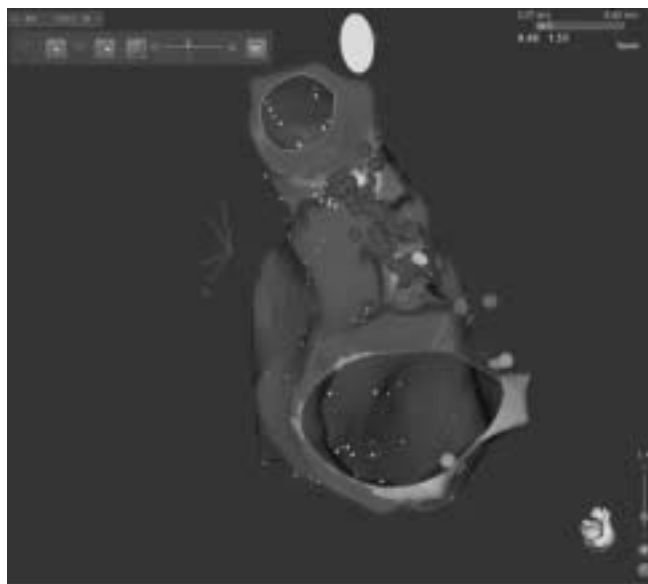
Right ventricular voltage map, view from the TA

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Is the measurement of accessory pathway refractory period reproducible?

Céline Olivier Kazmierczak, Béatrice Brembilla-Perrot
CHU of Brabois, Cardiology, Vandoeuvre Les Nancy, France

Short accessory pathway (AP) refractory period (RP), atrial fibrillation (AF), were reported as risk factors of sudden death in Wolff-Parkinson White syndrome (WPW). A short AP RP is defined as 240 ms in control state (CS)and 200 ms after isoproterenol (iso). The purpose of study was to evaluate the reproducibility of the measurement of AP RP during a same electrophysiological study (EPS).

Methods: 76 patients (pts) aged from 8 to 68 years (mean 30±16.5) were studied prospectively for a preexcitation syndrome. EPS consisted of programmed atrial stimulation in CS at a basic cycle length of 400 ms with the introduction of one extrastimulus and the decrease of coupling until the effective AP RP or atrial RP. The measurement was repeated twice. Then, iso (0.02 to 1 µg.min⁻¹) was infused to increase the sinus rate to at least 130 beats/min and the programmed atrial stimulation was repeated twice in 56 pts.

Results: We noted important variations of AP RPs with generally a shortening at the second measurement. Mean variations were 34±51 ms in CS and 32±24 after iso. The mean values in CS were 280±50 ms and then 253.5±59 ms (p <0.003). The mean values after iso were 239±45 ms and then 209±39 ms (p< 0.0001). In CS 55 pts had initially an AP RP > 240 ms (mean 304±36); at other study, mean values were 278±44; 14 of them had an AP RP < 240 ms at the other measurement. Most of changes (n=9) occurred in pts with AP RP <280 ms. 21 pts had a short AP RP (<250 ms) (mean 220±18). All of them had still a short AP RP at other measurement (mean 204±24). After iso 49 pts had an AP RP longer than 190 ms (mean 248±41). At the other study mean value was 215±35 ms; 15 pts had an AP RP < 200 ms at the other study; all of them had an initial value < 250 ms. Among 7 pts with initial AP RP < 200 ms all of them but one had an AP RP < 200 ms.

Conclusion: There are important variations of AP refractory periods during electrophysiological study except in patients with very short AP refractory periods. Therefore the values of AP RP's should be interpreted carefully in association with the other data of electrophysiological study as the induction of tachycardias.

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Changes in T wave morphology prior to onset of ventricular arrhythmias in ICDs

Philippe Maury (1), Frank Raczka (2), Jean Luc Pasquié (2), Lionel Beck (3), Jerome Taieb (4), Alexandre Duparc (5), Benoit Hallier (6), Pierre Mondoly (1), Anne Rollin (1), Fujian Qu (6), Riddhi Shah (6), Taraneh G Farazi (6), Marc Delay (1), Claude Barnay (4), Jean-Marc Davy (2)
(1) CHU Rangueil, Cardiologie, Toulouse, France - (2) Hôpital Universitaire Arnaud de Villeneuve, Montpellier, France - (3) Hôpital Universitaire Carremeau, Nimes, France - (4) CHG Aix en Provence, Aix en Provence, France - (5) CHU Rangueil, Toulouse, France - (6) St Jude Medical, Sunnyvale, Etats-Unis

Introduction: T wave morphological changes before onset of ventricular arrhythmia are poorly known. ICD-stored intracardiac electrograms (EGM) present a unique opportunity for detecting temporal changes in repolarisation before initiation of VT/VF.

Methods: 57 implanted patients with St Jude Medical ICDs (45 men, 64 ± 12 yo, mean EF 34 ± 15 %) were prospectively enrolled. Eleven different T wave parameters were extracted from EGM (T amplitude, T peak time, T end time, T duration between baseline crossing and between points of maximal slopes, T peak to T end, maximal ascending and descending slopes, timing of points of maximal slopes and T wave area). Values of each parameter in recordings prior to VT/VF were compared to control recordings sharing comparable QRS and T wave morphology and similar heart rate in the same pts.

Results: 23 VT/VF episodes (24 ± 13 beats) and 13 baseline (25 ± 9 beats) (ns) were analyzed in 12 pts (1,9 episode/ pt). Mean heart rate was 71 ± 17 bpm for episodes and 66 ± 16 bpm for baseline recordings (ns). Significant differences were found in T wave amplitude, T wave maximal slopes, T peak

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