POSTER SESSION

1212 Miscellaneous Topics in Ventricular Arrhythmias

Tuesday, April 01, 2003, 3:00 p.m.-5:00 p.m.
McCormick Place, Hall A
Presentation Hour: 4:00 p.m.-5:00 p.m.

1212-13 A Novel Form of Familial Bidirectional Ventricular Tachycardia

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Background: Familial polymorphic (FP) ventricular tachycardia (VT) is usually characterized by stress induced bidirectional or polymorphic VT in the absence of structural heart disease. Associated genetic defects were previously mapped to the human cardiac ryanodine receptor (hRyR2) gene and to the calsequestrin 2 (CASQ2) gene. We describe here a family of Yemenite Jews with a novel form of FP bidirectional VT. **Methods:** 28 members of the family were evaluated. Evaluation included clinical questionnaire, physical examination, 12 lead ECG, holter monitoring, treadmill exercise testing and echocardiography. Genetic analysis up to this point included segregation analysis and the exclusion of candidate genes known to be associated with the intracellular transport of calcium. A genome wide search is currently being performed, in order to find the linkage interval of the disorder in this family. **Results:** Three family members had incessant polymorphous and bidirectional VT, electrocardiographically similar to those described in other series of FPVT, but unrelated to exercise, and mostly asymptomatic. More subtle but morphologically similar ventricular arrhythmias were detected in 3 other family members. QT interval, as well as echocardiography was normal. While two affected members had a history of questionable syncope, there were no cases of sudden death in the family. Segregation analysis suggested autosomal dominant inheritance. We have already excluded the following candidate genes: CASQ2, hRyR2, Junctin and Triadine. **Conclusions:** Our data suggest that this inherited form of FP VT is distinct in its clinical and genetic characteristics from other previously identified hereditary FP VTs. The genetic locus of the disease-causing gene has yet to be identified.

1212-14 Electrophysiologic and Clinical Implications of Induced or Not Ventricular Fibrillation by Programmed Ventricular Stimulation in Patients With Catecholaminergic Polymorphic Ventricular Tachyarrhythmias

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Background: Catecholaminergic Polymorphic Ventricular Tachyarrhythmia (CPVT) Is a highly lethal genetic disorder responsible for juvenile Sudden Cardiac Arrest. Clinical and electrophysiologic implications of programmed ventricular stimulation (PVS) induced ventricular fibrillation (VF) in this young population Are assessed.
Methods: Eleven syncopal patients (age range From 5 to 23 years) With CPVT were submitted to PVS. A Fisher's exact test for a p-value of .05 using Monte Carlo Marcov Chain simulation (MCMC) was used to evaluate the prognostic significance of induced or not ventricular fibrillation by PVS. Probability of sudden death with a positive or negative tested was further compared with fatal event.
Results: Of 11 studied patients 3 died (age 8, 12, 13y) After a mean follow-Up of 6 years. PVS-induced VF (group 1) was present in only one pt Who Is still alive. Out of 10 non inducible pts 3 died in the follow-up. In group 2 all pts had a documented CPVT and 3 died. After 70.000 MCMC simulations p=0.7158(CI: 0.5623-0.8693). The non-induced and induced individuals did Not differ in terms of age, QRS duration or refractoriness. However, patients who suffered SD had irreversible emotional triggers.
Conclusions: 1-Probability of sudden death Is the same in inducible and non-inducible patients, thus the VF induced by programmed stimulation in the patients With catecholaminergic VT probably represents a non-specific response. 2-Non-inducible patients are not free of fatal events.

1212-15 Should an Electrophysiologic Study Be Performed in All Patients With Chronic Heart Failure and an Indication for a Biventricular Pacemaker Before Implantation?

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Aim of this prospective study was 1) to assess how often a ventricular tachycardia was induced in patients (pts) with chronic heart failure without a history of VT/VF before cardiac resynchronization therapy (CRT) and 2) to evaluate the outcome in these pts. Methods. Overall 48 pts (20 pts with prior myocardial infarction (MI), and 28 pts with dilated cardiomyopathy (DCM)) were included. All pts had severe heart failure (NYHA III), low LV ejection fraction (EF< 35%) and intraventricular conduction delay (>150 ms), however no history of an arrhythmic event. In all pts programmed ventricular stimulation was performed. If a monomorphic ventricular tachycardia (VT) was induced, a biventricular ICD was implanted. Mean follow up (FU) was 12 ± 8 months. Results: VT/VF was not induced in 24 pts, 2/24 pts died during FU due to heart failure (CHF). VF was induced in 6/28 pts with DCM and in 5/20 pts with MI. 1/11 pts died due to CHF. Outcome of pts with induced VT and ICD implantation are listed in the table. Conclusion: 1) In 1/4 of pts with severe heart failure, low ejection fraction and conduction delay a VT was induced. 2) During follow up 1/3 of the pts with induced VT and an ICD experienced a spontaneous episode of VT/VF. Thus, programmed ventricular stimulation may be considered in all pts with the indication for CRT before implantation to select pts at high risk for arrhythmic events.

	VT induced	spontaneous VT/VF during FU	death during FU
20pts with MI	8/20 pts (40%)	3/8 pts (37.5%)	1/8pts (12.5%)
28pts with DCM	5/28 pts (17.9%)	2/5pts (40%)	0/5pts (0%)
overall48 pts	13/48 pts (27%)	5/13 pts (38.5%)	1/13 pts (8%)

1212-16 Do All Ischemic Ventricular Tachycardia Patients Need an Implantable Cardioverter Defibrillator?

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Background: Recurrent ventricular tachycardia (VT) in pts with previous myocardial infarction (MI) is associated with a poor prognosis due to high recurrence rates. Radiofrequency Catheter Ablation (RFCA) of VT may serve as an alternative treatment option. We studied the results of RFCA procedures of VT in pts with previous MI.
Methods: Standard ablation and mapping techniques were used. All inducible and hemodynamically tolerated VT were targeted.
Results: RFCA was performed in 93 consecutive pts (83 male, age 66±10 yrs). Six pts underwent RFCA because of incessant VT. LV ejection fraction was 29±11%. The number of induced VT was 2.1±1.3 VT/pt. The procedure was successful in 80% (74) of the pts (noninducibility of VT and no recurrence <48 hours). Complications were observed in 7 pts (8%). Two pts (both incessant VT) died due to cardiogenic shock (<48 hours after RFCA). Myocardial perforation occurred in 1 pt (recovered uneventfully after surgery). Two pts suffered from ischemic stroke and 2 pts suffered from total heart block. Before discharge 24 pts (26%) underwent ICD placement, either because of a nonsuccessful procedure or hemodynamically nontolerable VT/VF. During follow-up of 34±11 mos, recurrences were observed in 23% of all patients: 15% (11/74) in the successfully ablated pts and 59% (10/17) in the nonsuccessfully ablated pts (P<0.001). Of interest, successfully ablated patients who received an ICD after ablation or had an ICD implanted before the procedure (32/74, 43%), had significantly fewer appropriate shocks for VT/VF (5/32, 16%) than patients (10/17, 59%) nonsuccessfully ablated (6/10, 60%, P<0.005). Twelve pts (13%) died: heart failure (8 pts), noncardiac cause (3 pts) and unknown cause (1 pt).
Conclusion: RFCA of ischemic can be performed with a high success rate (80%). A successful procedure is associated with a significant reduction in the recurrence rate. Furthermore, less appropriate ICD discharges are observed in the successfully ablated patients. As only one patient died due to an unknown cause during follow-up, a selective ICD implantation approach in patients with hemodynamically stable VT warrants further study.

1212-17 Determinants and Clinical Implications of the Lack of Palpitations During Regular Wide QRS Complex Tachycardia

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Background: Palpitations (PAL) are one of the most frequent symptoms in patients (P) with tachycardia. However, frequently, P do not feel PAL during sustained wide QRS complex tachycardia (WQRST). The aim of this study was to analyse the physiopathological determinants and clinical implications of the lack of PAL during WQRST.
Methods: We studied 200 consecutive P with clinical sustained WQRST not leading to cardiac arrest (56±18 y, 155 male, 151 with structural heart disease) undergoing electrophysiological study. P were divided into 2 groups according to the absence (A: 79 P; 39 %) or presence of PAL (B: 121 P; 61 %) during the clinical tachycardia. The relationship between PAL and the following variables were prospectively analysed: age, sex, presence of structural heart disease, left ventricle ejection fraction (LVEF), supraventricular (50 P, 5 %) or ventricular (150 P, 75 %) mechanism, tachycardia cycle length, atrioventricular dissociation, and QRS morphology and width. Variables showing statistically significant univariate association with PAL followed a stepwise logistic regression analysis.
Results: The absence of PAL was linked to older age (A 60±16, B 51±18; p=0,03), structural heart disease (A 97%, B 57%; p<0.001), lower LVEF (A 33±12, B 55±15; p<0,001), ventricular mechanism (A 96%, B 61%; p< 0,001), VA dissociation (A 91%, B 51%; p<0,001), and wider QRS complex (A:185±261, B: 52±25; p<0,001). LVEF (p=0.001), QRS width (p<0.01) and ventricular origin (p<0.03) were independent predictors of the absence of PAL at multivariate analysis. Except for 3, all of the P without PAL during WQRST had a LVEF lower than 50% (S: 66 %; SP: 96 %; +PV: 96 %; -PV: 68 % for LVEF<50). In addition, PAL were absent only in three P (all of them with LV dysfunction) with a supraventricular mechanism (S: 50%, SP: 94% +PV: 96%; -PV: 38% for ventricular origin).
Conclusions: Low LVEF, wide QRS and ventricular origin are the main determinants for the lack of PAL in patients with WQRST. Absence of PAL is highly suggestive of left ventricular dysfunction, and makes supraventricular origin unlikely.