925-45 Is There a Gender Gap in Clinical Presentation and Outcome of Hypertrophic Cardiomyopathy?

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A bias in referral as well as a worse outcome have been recently observed in female patients with various cardiac disorders. It remains unexplored, however, whether these gender related differences occur also in hypertrophic cardiomyopathy (HC). To address this issue, we compared the presenting features and outcomes in 84 men (M) and 65 women (W) with HC, who were consecutively referred to us for hemodynamic evaluation. Time from onset of symptoms to referral was longer in W than in M (23 ± 11 vs 12 ± 8 months, $p < 0.001$). Also, W were older (44 ± 12 vs 35 ± 10 years, $p < 0.001$), and had a higher prevalence of chest pain (46% vs 23%, $p < 0.01$), dyspnea (58% vs 30%, $p < 0.001$), and syncope or presyncope (42% vs 21%, $p < 0.02$), as compared with M. Doppler echocardiography showed that the two groups had similar LV dimension, mass, as well as syte and extent of hypertrophy, whereas W had a lower ratio of transmitral early to late peak filling waves than M (0.8 ± 0.3 vs 1.2 ± 0.4, $p < 0.001$), thus indicating a worse LV diastolic function. In addition, at stress testing, W exhibited a shorter duration of exercise than M (4.5 ± 1.2 vs 7.4 ± 1.5 min, $p < 0.001$). At catheterization, there were no gender associated differences in prevalence of LV obstruction, ejection fraction, cardiac index, as well as right- and left-sided intracavitary pressures. During a follow-up of 8 ± 4 years, sudden death occurred in 11 M (13%) and 17 W (26%), whereas 3 M (5%) and 4 W (6%) died from heart failure or were transplanted. Total unadjusted cardiac mortality was significantly ($p = 0.02$) higher in W than in M, with a relative odds ratio of 1.94. However, after multivariate correction for age, symptoms, LV filling, and exercise capacity, the gender difference in mortality was no longer found (odds ratio 1.15). It is concluded that: (1) the gender bias in referral, as described in other conditions, occurs also in HC, W being referred when are older, more symptomatic, and in a worse functional status than M; (2) female gender, however, does not appear to influence "per se" the morphologic expression or the clinical course of the disease.

926 Ventricular Arrhythmias: Conduction and Repolarization

Monday, March 20, 1995, 3:00 p.m.–5:00 p.m.
Ernest N. Morial Convention Center, Hall E
Presentation Hour: 4:00 p.m.–5:00 p.m.

926-23 Endocardial Mapping in Patients with the Hereditary Long QT Syndrome

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Endocardial right and left ventricular mapping was performed in n = 12 patients with the Long QT Syndrome (LQTS) to determine the presence of myocardial microvolt potentials (MMP) within the ST-T segment and after the T-wave. The findings were compared with those obtained in n = 12 age and sex matched WPW patients, who served as control group. Mapping was performed without medication (baseline), and after Orciprenaline (0.01 mg/kg i.v.) and Propranolol 0.013 mg/kg i.v.).

	LQTS	Control	P
QTc-duration			
Baseline	479 ± 41 ms	395 ± 29 ms	<0.01
Orciprenaline	494 ± 43 ms	386 ± 24 ms	<0.01
Propranolol	461 ± 48 ms	397 ± 26 ms	<0.01
MMP			
Baseline	n = 3	n = 0	NS
Orciprenaline	n = 12	n = 0	<0.01
Propranolol	n = 0	n = 0	NS

MMP could be detected in all LQTS patients after administration of Orciprenaline, no MMP could be induced in the WPW group. We consider MMP in LQTS patients to be an evidence of early after depolarizations. This finding could be pathognomonic for LQTS patients. Thus, endocardial mapping may contribute important diagnostic information in patients with suspected LQTS.

926-24 Clinical and Electrophysiological Characteristics in Patients with Exercise Induced Idiopathic Multiform Ventricular Tachycardia. Differential Effects of Atrial Pacing and Isoproterenol Infusion on QTc Interval and Induction of Ventricular Arrhythmia

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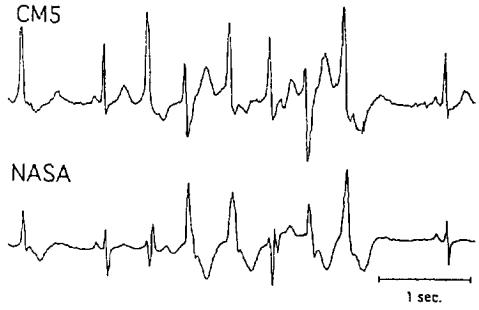
Idiopathic multiform ventricular tachycardia (VT) is characterized by *normal QT interval at rest* and 3 or more distinct QRS configuration during VT, which has been distinguished from torsade de pointes in long QT syndrome. Facilitation by exercise and suppression by β-antagonist of this VT suggest that it may depend on rapid heart rate (HR) or increased sympathetic tone. To determine which factors is responsible, we performed atrial pacing (120/min) and isoproterenol (ISP) infusion (0.5 or 1.0 μg to attain HR 120/min) in 6 patients (2 males/4 females, mean 15.8 years) and 10 control (4 males/6 females, mean 22.8 years). Inducibility of premature ventricular contraction (PVC) or VT, and response of QTc interval ($QT/\sqrt{RR}$) were evaluated during the procedures.



	control	multiform VT	p value
PVC/VT induction			
Atrial pacing	0/7	1/6	n.s.
Isoproterenol	0/8	6/6	0.001
QTc (sec1/2)			
Rest	0.40 ± 0.02 (n = 10)	0.40 ± 0.03	n.s.
Atrial pacing	0.43 ± 0.02 (n = 7)	0.47 ± 0.03	<0.01
Isoproterenol	0.44 ± 0.01 (n = 8)	0.50 ± 0.05	<0.001

Conclusion; Although both rapid HR and increased sympathetic tone may be responsible for this VT, contribution of the latter is predominant. Differential response of QT interval to atrial pacing and isoproterenol infusion may have a possible role for the occurrence of this VT.

926-25 Arrhythmogenic T Wave Alternans is Primarily a Disturbance of Early Repolarization

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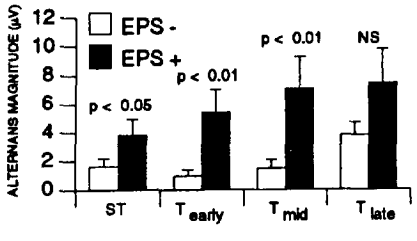
Although we have shown previously that electrical alternans of the ST segment and T wave; i.e., repolarization alternans (RA), is a marker of vulnerability to ventricular arrhythmias, the mechanism of RA in humans remains unclear. To determine the component of repolarization that is most closely associated with arrhythmogenesis, electrical alternans of the ST segment, and the early (T_{early}), mid (T_{mid}), and late (T_{late}) components of the T wave were measured using sensitive spectral analytical techniques in 35 patients undergoing electrophysiological studies (EPS). Alternans measured in each phase of repolarization was correlated with arrhythmia vulnerability as defined by; 1. The results of EPS and 2. Actuarial 20 month arrhythmia-free survival.

In EPS+ patients, the magnitude of RA increased progressively during later phases of repolarization (Figure). In contrast, EPS-patients had elevated RA levels only in late (T_{late}) but not during early repolarization. Hence, RA of T_{late} did not differ significantly between EPS+ and EPS− patients (Figure).



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