Discussion: High dQT is associated with negative markers of health: uncontrolled hypertension, high comorbidity, reduced HRV, and low use of ace-inhibitors and calcium-channel blockers. This marker of "cardiac instability", that can be easily achieved, identifies an old population at risk of adverse events.

P850 New algorithm for arrhythmogenic focuses localization in patients with right ventricular outflow tract arrhythmias

M. Pytkowski, A. Maciag, M. Sterlinski, A. Jankowska, A. Kraska, A. Matar, H. Szwed. *Institute of Cardiology, Warsaw, Poland*

Premature ventricular contractions (PVCs) and ventricular tachycardia (VT) ECG morphology are proposed to localize the site of radiofrequency ablation (RFA) from the right ventricular outflow tract (RVOT). Aim. At the first step an ECG algorithm to localize the arrhythmogenic focus (AFo) in RVOT was designed. In the next step this algorithm was verified in prospective study.
Methods: Analysis ofECG morphology of PVCs and VT was performed in 30 pts (25 women), age 42,4 ± 10,5, after RFA of AFo in RVOT. PVCs in 11 pts, VT in 5 pts, PVCs+VT in 14 pts were recorded. In the first step ECG data and fluoroscopic RVOT sites of RFA were combined to gain the characteristic QRS morphologies for exact sites of successful ablation (first 16 pts). Q, R and S waves <0.5 mV in 12-lead ECG were coded as q,r,s and waves ≥ 0.5 mV as Q,R,S. This own algorithm was used to recognize AFo in following 14 pts by two independent cardiologists.
Results: First step: an algorithm is presented in table. Second step: Concordant ECG and RFA AFo locations were achieved: in all 14 pts in horizontal zones and in 13 pts in vertical zones. In overall 30 pts no AFo discordances were noted in horizontal zones. In vertical zones AFo location was concordant in 28 pts.

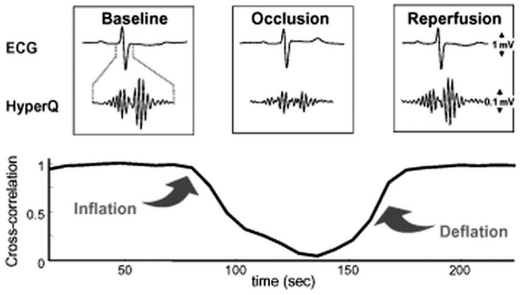
ECG leads	Vertical zones: 1,2,3		
	1	2	3
I	r/R	rs, rsr', qr Horizontal zones: superior, intermediate, inferior	qs/QS
	superior	intermediate	inferior
V1-V6	transition from QS or r<S in V1 into r,R or R>s in V4	R=S(r=s) in V4	transition from r<S in V4 into r,R in V6

Conclusions: Our data shows that simple ECG algorithm based on PVCs morphology precisely localizes the AFo in RVOT. This analysis should be applied before RFA to shorten and simplify procedure.

P851 Analysis of high-frequency mid-QRS components is highly sensitive to myocardial ischemia caused by intra-coronary balloon occlusion

I. Herz, A. Finkelstein, J. George, S. Viskin, R. Rosso, G. Keren. *The Tel Aviv Sourasky Medical Center, Cardiology, Tel Aviv, Israel*

Typical detection of myocardial ischemia focuses on changes in the repolarization phase of the ECG manifested in the ST-T segment. However, ischemia also induces changes to the depolarization phase, which can be quantified by analyzing the high-frequency content of the mid-QRS complex (HF-QRS). Our aim was to test this technique in detecting ischemia caused by short intra-coronary balloon occlusions and compare it to conventional ECG interpretation.
Methods: High resolution ECG was acquired and the HyperQ signal representing HF-QRS data derived using the HyperQ™ System (BSP, Israel) in 34 patients undergoing coronary angioplasty (16 LAD, 10 RCA, 8 LCX). Two epochs were defined for the first balloon occlusion: (i) 60 s baseline before inflation and (ii) immediately before deflation. Changes in the HyperQ signal and in the ST level were measured before deflation relative to baseline. Changes in the HyperQ signal were quantified by cross-correlation technique. HyperQ signal changes were considered significant if larger than three times the standard deviation of the signal during baseline.
Results: Occlusion duration was 68±16 s. Typical HyperQ response to occlusion included marked changes in both the intensity and morphological features of the HyperQ signal, manifested in reduction of the correlation function (see figure). Significant HyperQ changes were found in 32 patients (94%). In contrast, significant ST changes were observed in 15 pts (44%, $p<0.01$).
Conclusions: Intra-coronary balloon occlusion induced marked changes to the HyperQ signal. HyperQ-based ischemia detection scheme was found more sensitive than traditional ECG analysis. HyperQ analysis may allow improved diagnosis and monitoring of ischemia.



HyperQ analysis during occlusion

P852 Study of QT dispersion in children treated with anthracyclines for malignant hemopathies

A.-G. Dimitriu[1], C. Mandric[2], I. Miron[2]. *[1]Iasi, Romania; [2]University of Medicine and Pharmacy, Pediatrics, Iasi, Romania*

Purpose: To investigate the utility of electrocardiographic study of QT and QTc dispersion, in children with malignant hemopathies treated with anthracyclines, to correlate these with other cardiotoxicity signs of chemotherapy. Materials and methods.Patients: 40 patients, aged between 2-18 years, with malignant hemopathies, treated with anthracyclines. All patients have been clinically examined; we use Doppler echocardiography to evaluate left ventricle systolic and diastolic function, and surface electrocardiography to manually measure the QT interval, on three successive cardiac cycles, the values of QT dispersion (difference between the maximum and minimum QT interval) and corrected QT dispersion (Bazett's formula). Dispersion of QT and QTc interval in these patients was compared to similar values from 20 healthy children without cardiovascular history.
Results: The increase of QT and QTc dispersion in patients who received treatment with anthracyclines comparative to the control lot, was revealed in 73% cases, usually in those which had a cumulative anthracyclines doses over 400 mg/m^2, with medium values of QTD: 53,33 ±10,18 msec and QTcD: 66,28 ± 12,8 msec. The increased dispersion of QT and QTc intervals was highlight most frequently in cases with echocardiographycal signs of anthracyclines cardiotoxicity, even in cases with only diastolic dysfunction of left ventricle.
Conclusions: The significant incidence of increasing the QT and QTc dispersion in patients who received treatment with anthracyclines and the correlation with cumulative anthracyclines doses and echocardiographycal modifications, especially in diastolic dysfunction, recommend currently investigation of QT dispersion as an earlier marker for cardiotoxicity of anthracyclines.

P853 Electrical and morphological atrial adaptations in hypertensives with paroxysmal atrial fibrillation

I. Skiadas, C. Tsioufis, I. Vlasseros, C. Zounis, P. Pavlidis, K. Dimitriadis, C. Stefanadis, I. Kallikazaros. *Department of Cardiology, Hippokration, Athens, Greece*

Purpose: Essential hypertension and atrial fibrillation quite often coexist and due to their increased risk for cardiovascular events, they both constitute major targets for primary intervention. In this endeavour to clarify the entangled pathophysiological pathways, the present study was conducted to reveal any plausible interrelationships of the atrial electrical and morphological properties of the hypertensive heart in the setting of paroxysmal atrial fibrillation (PAF).
Methods: We studied 46 consecutive essential hypertensive subjects (aged 64 years, 22 men, office blood pressure (BP) 144/86mmHg) with a history of paroxysmal atrial fibrillation and no other evident comorbidity and 49 consecutive essential hypertensives without any evidence of PAF, matched for age, sex and BP. Standard 12-lead electrocardiograms (ECG) were recorded from all included subjects while on sinus rhythm. Simultaneously, a complete conventional and tissue doppler imaging (TDI) echocardiographic study was performed. Left Ventricular (LV) diastolic function was estimated by TDI, averaging the diastolic mitral annular velocities measurements.
Results: The two groups were similar regarding demographics but compared to those without PAF had a longer duration of hypertension (5±1 vs 2±1 years, $p<0.05$), and showed significantly increased relative wall thickness (0.46 vs 0.44, $p<0.05$), left atrial volume indexed for body surface area (LAV index) (23.63±7.9 vs 19.68±3.7 ml/m^2, $p<0.05$) and lower Em (7.5±1.6 vs 8.4±1.4cm, $p<0.05$) and Em/Amvalues (0.8±0.11 vs 0.9±0.38, $p<0.05$). Concerning their ECG findings hypertensives with PAF did not differ except from the significantly longer duration of P wave and PR interval (124±18 vs 111±11ms, and 177±22 vs 155±21ms, both $p<0.001$).
Conclusions: Hypertensive subjects with a history of PAF have in parallel significantly higher LAV index values, worse TDI-detected LV diastolic dysfunction and significantly elongated duration of P wave and PR interval. Although the underlying pathophysiological mechanisms of this vicious circle are partially understood, this association merit further investigation through interventional prospective studies.