



Newer insights from Exercise stress test in Early Repolarization Syndrome (ERS)

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Abstract :

Clinical interest in electrocardiographic (ECG) phenomena of early ventricular repolarization (EVR) has been rekindled recently mainly because of their clinically established association with fatal cardiac arrhythmias, particularly in otherwise healthy individuals heart. ECG phenomena of ERS have often been misdiagnosed, misinterpreted, or undermined. The main focus of this review is to characterize the ECG patterns of the ERS with a special focus on the exercise stress in ERS.

Keyword : Early repolarization, Exercise stress test, Arrhythmia

Background:

Clinical interest in electrocardiographic (ECG) phenomena of early ventricular repolarization (EVR) has been rekindled recently mainly because of their clinically established association with fatal cardiac arrhythmias, particularly in otherwise healthy individuals heart. ECG phenomena of ERS have often been misdiagnosed, misinterpreted, or undermined. The main focus of this review is to

characterize the *ECG patterns of the ERS with a special focus on the exercise stress in ERS.*

Methods:

40 patients, who were having baseline ECG evidence of ERS were selected from our OP. Based on their ECG s, they were categorised in to those having J point deflection, QRS notching, QRS slurring and J wave(Picture 1,2,3). All the patients underwent clinical examination, echo and stress exercise by Brue protocol.

Results:

In our study 39 were males and 1 female, age ranged between 21 -40 years, all patients were healthy manual workers, none of the patient had family history of sudden death. Echocardiography of these patients were normal except in 1 patient who had dilated and dysfunctional right ventricle who was later diagnosed to have ARVD. 32 patients had J point deflection, 7 patients had QRS notching and 1 patient had QRS slurring. All the patients had their J point normalised during exercise,

3 patients who had QRS notching in the baseline ECG had occasional ventricular ectopics during peak exercise, 1 patient who had QRS slurring was diagnosed to have ARVD. 1 patient who had J point deflection revealed WPW syndrome and had ventricular tachycardia during exercise. None of them had inducible ischemia. Exercise capacity was good in all the patients except the one who had ARVD. (Table 1)

Conclusion:

With benign tag form ERS is being removed in recent times (After the Hasgures landmark study), we suggest every one with ERS pattern should undergo detailed clinical examination, echocardiography and exercise stress testing. As we hypothesised the incidence of VPDs and non sustained VT were relatively higher in this population. We propose EST in ERS patients to identify high risk subsets who are prone for VT/VF during times of ischemia.

In our opinion:

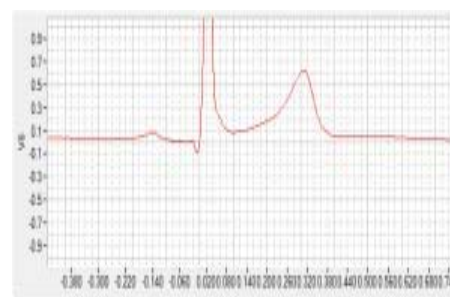
1 ERS, as a diagnosis, should not be regarded as either benign or malignant *a priori unless otherwise proven*.

2 Clinical judgment based on clinical presentation ("arrhythmogenic" anamnesis), family history or syncope/SCD, potential use of cardio-active drugs, including psychotropic medications is the most essential in the risk stratification of the ERS subject. Special attention should be devoted to the family history of primary ERS abnormalities and/or SCD.

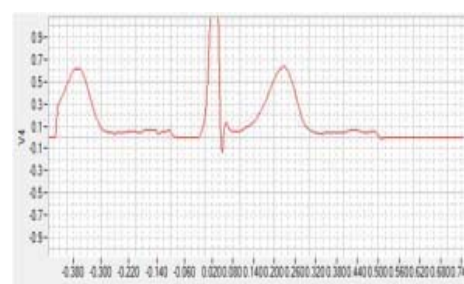
3 Additional diagnostic work-up, such as tilt-test, signal-averaging ECG, and electrophysiological studies with or without exercise or drug testing, should be considered on the case-by case basis upon physician's discretion. Genetic screening of ERS subjects at risk, once available, will be one of the most important

diagnostic tools to identify and/or confirm the diagnosis of primary electrical abnormalities/diseases of the ERS.

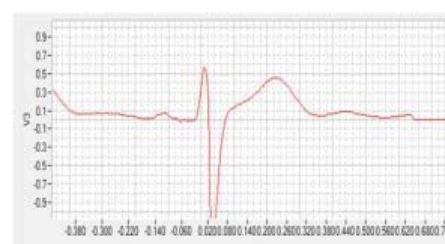
4 It is important to keep in mind that ERS subjects might be predisposed to the drug-induced ventricular arrhythmias.



Picture 1



Picture 2



Stress exercise features	Baseline HR		Functional capacity		ST deviation			VPDs/NSVT		VT		WPW/VT	
	60-70	70-80	good	poor	normalised	elevation	depression	Yes	no	Yes	no	Yes	no
No of patients	35	5	39	1	40	0	0	3	37	1	39	1	39

Picture 3
Table 1