Lomtatidze G et al., J Clin Exp Cardiolog 2017, 8:9(Suppl)
DOI: 10.4172/2155-9880-C1-078

Detection and potential risk of early repolarization syndrome in Georgian athletes

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Background: Cardiovascular-related sudden death is the leading cause of mortality in athletes during sport. Results of several studies showed presence of potential arrhythmogenic effect of early repolarization syndrome (ERS).

Purpose: Taking into consideration high incidence of this syndrome among young athletes, we studied topicality and potential arrhythmogenic risk of ERS in Georgian athletes.

Methods: From examined subjects we selected group of 113 active professional rugby players. Examination included: collection of anthropometric and anamnestic data (history of syncope/pre-syncope or idiopathic arrhythmias, family history of unexplained sudden death), also risk factors detection: alcohol and tobacco consumption etc.); standard ECG, 24-hour ECG monitoring, treadmill test, ultrasound examination of the heart (detection of valvular pathologies, septal hypertrophy and/or defects, left ventricular hypertrophy).

Results: We detected early repolarization syndrome in 48% of examined athletes, mean values were: age 25.4±4.4 years, BMI 28.1±2.1 kg/m2, and duration of sport activity 13.3±4.1 years. Normal BMI has 10%, overweight/obesity 77 and 13% respectively. Normotensives were 95%, hypertension was detected in 15% (mild 10/moderate 5%), left ventricular hypertrophy occurred in 31% (eccentric 25/concentric 6%), concentric remodeling in 50%, normal geometry in 20%. Family CVD history had 11%, mild tobacco and alcohol consumption noticed 12/28%, and town/village residents were 84/16% respectively. Occurrence of valvular disorders was not high: mitral valve prolapses in 6%, mild mitral/aortic regurgitation in 6/9%, false tendons in 2%, atrial septal aneurysm/patent foramen ovale in 1%. 24-hour ECG monitoring revealed bradycardia in 50%, frequent episodes of sinus arrhythmia in 35%, rhythm migration in 2%, Supraventricular arrhythmias in 5% (frequent), I-II degree AV block in 2%, short PR interval in 4%. ERS patterns were: we detected Caucasian ERS type in 35%, notched and slurred in 30 and 10% respectively, anterior localization was present in 50%, antero-lateral in 50%, horizontal/descending ST type had 4%, mean amplitude of ST elevation was 182,5± 49,4 μV. Treadmill test was negative in all cases and does not revealed any exercise-induced arrhythmias. Examined subjects did not present any complains, history of syncope/pre-syncope, idiopathic arrhythmias, familial sudden death history.

Conclusions: At this stage of the study, we did not detect any severe structural and hemo-dynamical changes of heart, life-threatening arrhythmias, or predictors of sudden death associated with early repolarization syndrome in athletes. Data of our study suggest that ERS patterns observed in Georgian athletes are not associated with arrhythmogenic risk and sudden death.

Biography

Ketevan Chagunava worked as Cardiologist at Tbilisi N1 Clinic Hospital; as Head Doctor of Out-Patient department at Private Cardiological Clinic VAGI, as Cardiologist and Radiologist, Senior Scientific Researcher of Department of Methods of Functional Diagnostic at National Center of Therapy, where she completed her PhD. She works as Cardiologist and Head of Department of Functional Methods of Diagnostic at new hospitals and main research staff at Ivane Javakhishvili Tbilisi State University. She has published more than 40 articles in reputed journals and has more than 25 poster presentations at various international conferences. She has been serving as Deputy Chief Editor of the journal *Gerontology and Geriatric*.

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