

Nº de abstracts = **45**

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Electrocardiographic amplitudes: a new risk factor for sudden death in hypertrophic cardiomyopathy.

Ostman-Smith I, Wisten A, Nylander E, Bratt EL, Granelli AW, Oulhaj A, Ljungström E.: European Heart Journal

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2010,
31(4):439-49.

Division of Paediatrics, Department of Clinical Sciences, Sahlgrenska Academy, Gothenburg University, Queen Silvia Childrens Hospital, SE-416 85 Gothenburg, Sweden.

AIMS: Assessment of ECG-features as predictors of sudden death in adults with hypertrophic cardiomyopathy (HCM). METHODS AND RESULTS: ECG-amplitude sums were measured in 44 normals, 34 athletes, a hospital-cohort of 87 HCM-patients, and 29 HCM-patients with sudden death or cardiac arrest (HCM-CA). HCM-patients with sudden death or cardiac arrest had substantially higher ECG-amplitudes than the HCM-cohort for limb-lead and 12-lead QRS-amplitude sums, and amplitude-duration products ($P = 0.00003$ - $P = 0.000002$). Separation of HCM-CA from the HCM-cohort is obtained by limb-lead QRS-amplitude sum ≥ 7.7 mV (odds ratio 18.8, sensitivity 87%, negative predictive value (NPV) 94%, $P < 0.000002$), or 12-lead QRS-amplitude sum ≥ 2.2 mV s (odds ratio 31.0, sensitivity 92%, NPV 97%, $P < 0.000002$), or limb-lead QRS-amplitude sum ≥ 0.70 mV s (odds ratio 31.5, sensitivity 93%, NPV 96%, $P < 0.000002$).

Diagnosis and management of elite young athletes undergoing arrhythmia intervention.

Kelly J, Kenny D, Martin RP, Stuart AG.: Archives of disease in childhood, 2011 96(1):21-4. Consultant Cardiologist, Bristol Congenital Heart Centre, Bristol Royal Infirmary, Bristol BS2 8HW, Avon, UK.

Background Sudden cardiac death is the most common cause of mortality in young athletes. In some of these, the final pathway is arrhythmia. The authors aimed to identify the incidence, diagnosis and management of athletes undergoing investigation and intervention for cardiac arrhythmias. **Methods** Retrospective analysis of all patients between 10 and 17 years presenting to a supra-regional paediatric cardiac unit for investigation and intervention for a cardiac arrhythmia. Elite athletes (county and national level) were identified from the departmental clinical and arrhythmia databases (October 1997-2007). Patients with significant congenital heart disease were excluded. **Results** From 657 patients undergoing 680 interventions, 324 were excluded. From the remaining 333 we identified 11 elite athletes - football (n=3), martial arts (n=2), rugby (n=2), triple jump, netball, canoeing, and motor sport (n=1). Presenting symptoms included palpitations (n=8) and syncope (n=1). Two were asymptomatic and investigated following routine screening. Diagnoses included atrioventricular (AV) re-entry tachycardia (n=3), AV node re-entry tachycardia (n=4), complete heart block (n=1), sinus node dysfunction (n=1), vasovagal syncope (n=1) and pre-excited atrial fibrillation (n=1). Arrhythmia interventions included implantable loop recorder (n=2), diagnostic electrophysiology study (n=9), including radiofrequency ablation (n=5), cryoablation (n=2) and pacemaker implantation (n=2). Following intervention, 10 children returned to competitive sport. There were no deaths. No child required long-term medication post-intervention. **Conclusion** Of the young competitive athletes identified from the authors' study, there was a high incidence of significant arrhythmias. Intervention is usually successful and most athletes return to elite sport without the need for long-term medication.

Cardiac rehabilitation after acute myocardial infarction].

Ghannem M.: Annales de cardiologie et d'angéiologie, 2010;12 59(6):367-79. Centre de réadaptation cardiaque Léopold-Bellan-d'Ollencourt, centre hospitalier de Gonesse, Tracy Le Mont, France.

At the time of evidence-based medicine, while the proofs of the benefits of cardiac rehabilitation to the coronary multiply, a large number of patients are still managed without any form of rehabilitation. In particular, younger patients with myocardial infarction treated by early reperfusion and older subjects. The objective of in-hospital or ambulatory cardiac rehabilitation is a global coverage of the patient and his/her risk factors, that the short duration of hospitalization in the acute phase does not allow. Several randomized studies, metaanalyses, and registers show a decrease from 20 to 30% of the mortality after cardiac rehabilitation. The benefits of physical training on risk factors modification are demonstrated by numerous works: improvement of lipid parameters and arterial pressure, prevention of diabetes, increased smoking cessation, loss of weight, better overall well-being; besides the management of risk factors, physical training improves exercise capacity, a recognised prognostic factor. The efficiency of cardiac rehabilitation may be comparable with that of the key treatments of coronary artery disease, such as beta-blockers or coronary angioplasty. All these proofs give to the cardiac rehabilitation in post-myocardial infarction a high-level recommendation, grade IA.

Heart rate variability and baroreceptor sensitivity following exercise-induced hyperthermia in endurance trained men. Armstrong RG, Ahmad S, Seely AJ, Kenny GP

European journal of applied physiology

112(2):501-11, 2012 We evaluated the effect of exercise-induced hyperthermia (EIH) on

autonomic nervous system (ANS) function in the early (5 mmol/dl), and three interrupted the test. The distance walked correlated with the ejection fraction (%) and functional class (NYHA). After 12-month follow-up, three patients died and seven were rehospitalized for cardiac decompensation. The D/PE ratio and 2-minute heart rate recovery (HRR2, bpm) were lower in the death group. **C** onclusion: The clinical and electrocardiographic behaviors suggest that the method is safe, but it may be considered too strenuous for some patients with severe heart failure. Variables related to 6WT performance may be associated with the one-year follow-up mortality.

Traumatic mitral valve injury after blunt chest trauma: a case report and review of the literature.

Pasquier M, Sierro C, Yersin B, Delay D, Carron PN.: The Journal of Trauma, 68(1):243-6, 2010. Emergency Services, University Hospital Center, Lausanne, Switzerland.

Mitral valve injury after blunt chest trauma is a rare occurrence. We recently admitted a patient with severe traumatic mitral regurgitation who was successfully treated with surgery. Review of the literature aimed at taking an inventory of cases of traumatic nonpenetrating mitral insufficiency that were operated on, since the earliest report in 1964. Eighty-two cases were found and analyzed allowing for a better understanding of the epidemiology, etiology, natural history, pathology, and treatment of this rare condition. The most common lesions reach the papillary muscles (PM), followed by the chordae and then the mitral valve leaflets. Among the 82 cases reported that have been treated with surgery, 57% required a valve replacement. More than half of the patients had a PM injury with a complete or partial rupture. When the rupture is complete, and especially when it involves the anterior PM, the clinical picture is most always acute with clinically important hemodynamic repercussions, often necessitating emergency surgery, most of the time with mitral valve replacement. One must always suspect traumatic mitral injury after blunt chest trauma. The most common mitral lesions affect the PM. The clinical course can be indolent or devastating, and most often requires urgent or delayed surgical treatment, either with mitral valve repair or replacement.

Sudden death of a young woman shortly after fleeing from violence.

Takahashi S, Funayama M.: Legal medicine (Tokyo, Japan), 11 Suppl 1:S526-7, 2009.

Division of Forensic Medicine, Department of Public Health and Forensic Medicine, Tohoku University Graduate School of Medicine, 2-1 Seiryō-machi, Aoba-ku, Sendai 980-8575, Japan.

A woman in her late-teens ran downstairs and out into the street to escape from violence by her boyfriend. She ran approximately 150 m and was suddenly collapsed immediately after stopping to call for help. She underwent cardiopulmonary resuscitation, which was unsuccessful. Autopsy revealed some minor injuries on the face, trunk and extremities. Meanwhile, the left coronary artery was originated from the right sinus of Valsalva, and the orifice had a slit-like appearance. Additionally, the main trunk of the left coronary artery coursed between the aortic sinus and the pulmonary trunk. Microscopically, the heart (240 g) showed small foci of contraction band necrosis and wavy changes. This type of coronary artery anomaly makes up only 0.0375% among all varieties of the anomaly according to a report of the US. However, it has a greater risk of sudden cardiac death during physical exercise. Taking the eyewitness testimony into account, we determined that the 150 m run at full speed, rather than the assault itself, had caused acute coronary insufficiency, leading the death of the decedent.

Objectively measured daily physical activity related to cardiac size in young children.

Dencker M, Thorsson O, Karlsson MK, Lindén C, Wollmer P, Andersen LB. Scandinavian Journal of Medicine & Science in Sports.

19(5):664-8, 2009.

Clinical Physiology and Nuclear Medicine Unit, Department of Clinical Sciences, Lund University, Malmö University Hospital, Malmö, Sweden.

Training studies in children have suggested that endurance training can give enlargement of cardiac dimensions. This relationship has not been studied on a population-based level in young children with objective methods. A cross-sectional study was made of 248 children (140 boys and 108 girls), aged 8-11 years, from a population-based cohort. Left ventricular end-diastolic diameter (LVDD) and left atrial end-systolic diameter (LA) were measured with echocardiography and indexed for body surface area (BSA). Physical activity was assessed by accelerometry, and the duration of vigorous physical activity per day (VPA) was calculated. Acceptable accelerometer and echocardiography measurements were obtained in 228 children (boys=127, girls=101). Univariate correlations between VPA and LVDD were indexed for BSA in boys ($r=0.27$, $P=0.007$) and Group 2 (