EuroPRevent 2009 **Number : 10279**

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Title :	Plasma serotonin levels and endothelial function in patients after early myocardial infarction in comparison with patients with depression.
Topic :	02.00 - Biomarkers
Option :	Young Investigator Award (YIA)

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Objectives: The serotoninergic system is known to modulate mood, emotion, sleep and appetite and thus is implicated in the control of numerous behavioral and physiological functions. Decreased serotoninergic neurotransmission has been proposed to play a key role in the etiology of depression. On the other hand, serotonin released from its stores in platelets can contribute to manifestation of CHD. The present study has the objective to compare plasma serotonin levels and endothelial function measured with flow mediated dilation method between patients after early myocardial infarction (until 45th year of age) and patient with manifest depression.
Methods: We examined 75 patients, 40 after early myocardial infarction (mean age 45.72 ± 8.29 years), 15 age matched patients (46.28 ± 6.75 years) with clinical manifest depression which was confirmed with Beck Depression Inventory and Zung self-rating depression scale and 20 controls (46.48 ± 6.62 years). Plasma serotonin levels were assess with RIA (DRG Instruments GmbH) early in the morning, fasting. We also compared mean systolic and diastolic blood pressure and heart rate from ambulatory blood pressure monitoring. Endothelial function was measured with flow mediated dilation method as postischemic dilatation of brachial artery with endothelial dysfunction characterized as postischemic dilatation under 7% from the baseline.
Results: We found significantly higher serotonin concentrations in patient after myocardial infarction as in the control group (533.71 ± 122.85 vs. 385.87 ± 85.21 ng/ml, $p< 0.01$). On the other side, patients with depression had significantly lower serotonin concentrations as control (155.89 ± 62.85 vs. 385.87 ± 85.21ng/ml, $p< 0.001$). Endothelial function was significantly lower in patients after myocardial infarction in comparison with controls (6.25 ± 2.78 vs. 11.85 ± 4.87%, $p< 0.01$). We found no significant difference in endothelial function between patients with depression and control group. Correlation between serotonin concentrations and systolic blood pressure ($r = .82157$, $p = 0.01$), heart rate ($r = .7218$, $p < 0.05$) and endothelial function ($r = - .7525$, $p = 0.01$) was also found.
Conclusions: These data suggest that changes in the serotonin plasma concentration could be a novel risk factor for early development of atherosclerotic lesions and endothelial dysfunction. Patients with early atherosclerosis presents higher serotonin levels, probably due to predisposition to local activation of thrombogenesis.

EuroPRevent 2009 **Number : 10333**

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Title : Evaluation of the implemetation of a region-wide preparticipation screening for athletes
Topic : 31.00 - Sports cardiology
Acronym : Sport mit Herz
Option : No Options

A. Treusch[1], T. Butz[2], O. Oldenburg[3], J. Holzinger[3], C. Langer[3], L. Faber[3], F. Van Buuren[3], KP. Mellwig[3] - (1) Leopoldina Hospital, Schweinfurt, Germany (2) Marienhospital, Herne, Germany (3) Heart and Diabetes Center NRW, Bad Oeynhausen, Germany

Purpose: preparticipation screening is recomended by the european society of cardiology and were published two years ago. The intention was to reduce sudden cardiac deaths in athletes and to evaluate athletes for severe heart conditions for their own protection. The objective of this study was to evaluate athletes at risk and the benefits from a regional network in preparticipation screening.
Methods: according to the ESC and EAPCR guidelines, preparticipation screening (history, auscultation, ECG, Blood pressure measurements) was done in a reginal network where 38 physicians (general family medicine, internal medicine or cardiology) with a sports medicine diploma who lived in the 6 countys of northrhine westphalia took part. The physicians were supplied by our center with a specialized ECG-Box that checks all ECG´s for abnormalities with aspecial software accorting to the guidelines and ECG´s were digitally stored in the Box and digitally sent with the results of history and auscultation to our center for second evaluation. Starting April 2007 until now (November 2008).
Results: we received 576 screened athlete files. 12 % of whom reported to have elevated blood pressure, where 59 % of them had documented elevated blood pressure after 15 minutes of rest. 68 % of the measured elevated blood pressures were not under a medication therapy. 8 % had a pathologic auscultation and needed further evaluation. 13 % of the screened athletes needed further evaluation either due to history/symptoms, auscultation or ECG. Disqualification from competitive sports was recommended in two cases (aortic aneurysm and hypertrophic cardiomyopathy).
Conclusion: a regional network for prepaticipation screening is a benefitial method to filter athletes at risk from healthy athletes. As 13% of the screened athletes needed further evaluation, more pathologic findings will be expected in higher sceening numbers. As two athletes had to be disqualified due to severe heart conditions, it is efficient in primary prevention. As many patients had elevated blood pressure at rest, more screening and therapy towards hypertension control seems to be helpful and important and should be done in further studies.

EuroPRevent 2009 **Number : 10375**

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Title : Children athlete's heart : effect of age and gender on echocardiographic parameters
Topic : 31.00 - Sports cardiology
Option : No Options

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The limits of athlete’s heart patterns have been largely described in athletes over 16 yrs old. However, to our knowledge, few data have been reported from younger highly trained athletes. The limits of athlete’s heart normal values, in accordance with age and gender, in this population seem important to precise.
Purpose: this prospective study aimed to describe echocardiographic (echo) patterns recorded in a large population of French highly trained (≥8 hours/week) children according to their age and gender.
Methods: 1221 French athletes, aged 7 to 16 yrs, have been included in this study. All have beneficiated from a clinical exam and a resting echocardiography according to the ASE recommendations. Body surface area (BSA) indexed usual echo data have been calculated. Four groups according to their age [young girls aged 10 to 12 yrs (n = 58, BSA = 1.3 ± 0.2 m2), old girls aged 13 to 16 yrs (n = 495, BSA = 1.6 ± 0.2 m2), young boys aged 7 to 13 yrs (n = 107, BSA = 1.5 ± 0.2 m2), old boys aged 14 to 16 yrs (n = 561, BSA = 1.8 ± 0.2 m2)] have been compared.
Results: mean overall population echo data were as follow: aortic diameter (Ao) 27.1 ± 3.5 mm; left atrial diameter (LAD) 31.8 ± 4.6 mm; left ventricular end diastolic diameter (LVEDD) 48.8 ± 4.7 mm; interventricular septum wall thickness (IVSWT) 8.6 ± 1.4 mm; posterior WT 8.1 ± 1.4 mm; LV mass 141.3 ± 41.4 g; left ventricular ejection fraction (LVEF) 67.1 ± 6.2 %; mitral waves: E 95.6 ± 16.9 mm/s, A 46.9 ± 12.0 mm/s, E/A ratio: 2.1 ± 0.6.
In both gender groups, older children obtained higher absolute values than younger ones ($p<0.05$), except for LVEF and E/A ratio. However, when indexed by BSA, higher values have been observed in the youngest children ($p<0.01$), except for LV mass/BSA, which remained superior in the older group ($p<0.05$). In both similar age groups, boys have higher absolute values compared to girls ($p<0.05$), except for LVEF and E/A ratio. Indexed by BSA, higher values were obtained for LVEDD in girls ($p<0.01$) and for LV mass in boys ($p<0.001$). Only in the youngest group, Ao/BSA and LAD/BSA were higher in boys ($p<0.001$). No difference between boys and girls was observed for IVSWT and posterior WT indexed by BSA in both groups, and for Ao/BSA and LAD/BSA only in the oldest group.
Conclusions: resting echocardiographic patterns in highly trained children are influenced by both age and gender. Thus, these two parameters must be taken into account in the interpretation of absolute and relative echocardiographic parameters. Our results propose limits of athlete’s echocardiographic patterns in highly trained children.

EuroPRevent 2009 **Number : 10319**

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Title : Ethnic differences in physiological cardiac adaptation to intense physical exercise in highly trained female athletes

Topic : 31.00 - Sports cardiology
Option : Young Investigator Award (YIA)

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Background: intense physical exercise is associated with modest increases in left ventricular wall thickness and cavity size. The magnitude of increase in cardiac dimensions is affected age, gender, size and type of sport. Studies confined to male athletes indicate that athletes of African/Caribbean (black; BA) origin develop left ventricular hypertrophy of greater magnitude than Caucasian (white; WA) athletes of similar age and size that participate in identical sporting disciplines. The impact of ethnicity has not been studied in female athletes. The aim of this echocardiographic study was to compare left ventricular cardiac dimensions in female WA and BA.
Methods: between 2006 & 2008, 110 nationally ranked female BA and 193 WA of similar age (BA 21 yrs +/- 4.62 range 14-35 vs WA 20 yrs +/- 4.03, range 14-35 P=0.18), size (BSA; BA 1.78 kg/m2 +/- 0.17 range 1.31-2.21 vs WA 1.73 kg/m2 +/- 0.18 range 1.33-1.96 P=0.10) and participating in a range of ball, racket and endurance sporting disciplines, underwent 2-D echocardiography using a GE Vivid I. Standard views and measurements were performed by experienced sport cardiologist. Left ventricular wall thickness (LVWT) was measured from the septum and the left ventricular posterior wall; the greatest measurement was defined as the maximal LVWT (MLVWT). Left ventricular mass (LVM) was calculated using the formula of Devereuax.
Results: black athletes demonstrated significantly greater MLVWT compared white athletes (9.2mm:+/- 1.1 range 6-13mm vs 8.7mm +/- 1.05 range 6-11 P<0.001) amounting to a 7% difference in MLVWT. BA exhibited a greater left atrial diameter compared to WA (35.6mm +/- 4.2 range 21-41 vs 32.4mm+/- 4.79 range 25-47 P<0.001). LVM was also significantly greater in BA vs WA (169gm+/- 37 range 95-210 vs 159 gm+/- 36 range 86-212; P<0.001). There were no differences between the two ethnic groups with respect to the left ventricular end diastolic cavity size (BA 48.3mm +/- 3.9 range 39-58 vs WA 47.8mm:+/- 4.3 range 40-62; p=0.95), or aortic root diameter (BA 27.1mm+/- 2.9 range 23-38 vs WA 26.4 +/- 2.8 range 17-33 P=0.28). In contrast with previously published literature in WA, 2 (0.6%) female BA (but none of the female WA) exhibited a MLVWT ≥12mm.
Conclusion: black female athletes exhibit a greater MLVWT and LVM compared with white female athletes of similar age and size participating in identical sporting disciplines. The precise mechanism for exaggerated hypertrophic response in black athletes in responses the increased preload and after load associated with exercise in BA remains to be elucidated.

EuroPRevent 2009 **Number : 10666**

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Title :	A meta-analysis of randomized control trials of home-based secondary prevention programs:Comparisons to usual care and hospital-based cardiac rehabilitation
Topic :	12.00 - Health services research
Option :	Young Investigator Award (YIA)

AM. Clark[1], M. Haykowsky[2], J. Kryworuchko[3], J. Scott[2], M. Desmeules[4], W. Luo[4], G. Liang[5], FA. Mc Alister[2] - (1) Edmonton, Canada (2) University of Alberta, Edmonton, Canada (3) University of Ottawa, Ottawa, Canada (4) Public Health Agency Canada, Ottawa, Canada (5) University of Texas, Texas, Canada

Purpose To identify the effectiveness of home-based secondary prevention programs for Coronary Heart Disease (CHD) compared to usual care and hospital-based cardiac rehabilitation.
Methods Meta-analysis following a search of 19 different indexing databases, existing systematic reviews, reference lists; and contacted experts. Studies included had to evaluate a predominantly or exclusively home-based intervention that addressed either > 1 main CHD risk factor using a randomized trial with either a usual care or cardiac rehabilitation comparison group. Data had to be extractable for CHD patients only and reported in English as a full published paper or thesis.
Results Out of 5007 citations screened, 39 papers reporting 36 unique trials were reviewed.
Trials evaluated interventions that were primarily provided through: paper / manuals-based (n=16), telephone,-based (n=12), home visits-based (n=5), or electronic (n=2), or unknown means (n=1). One trial did not state mode of delivery. Trials used ‘usual care’ (n=20), cardiac rehabilitation (n=9) and or both usual care and cardiac rehabilitation comparison groups (n=7).
Compared to usual care, home-based interventions significantly improved quality of life (WMD: 0.23; 95% CI: 0.02 to 0.45), systolic blood pressure (-4.36 mm Hg ; 95%: CI -6.50 to -2.22), smoking cessation (DP: 14% 95% CI: 2.0 to 26.0) , total cholesterol (SMD: -0.33: 95% CI: -0.57 to - 0.08), and depression (SMD: -0.33; 95% CI: -0.59 to -0.07). Effect sizes of improvements were small to moderate and trials were of low to moderate quality.
Comparisons between home-based interventions and cardiac rehabilitation could not be made reliably due to the small number of trials and high levels of heterogeneity.
Costs of home-based interventions for studies reporting this were around US$300.00 per patient
Conclusions There is promising evidence that home-based secondary prevention programs for CHD are an effective and relatively low cost complement to hospital-based cardiac rehabilitation. Due to the small number of trials and lack of high quality studies comparing home-based programs to hospital-based cardiac rehabilitation, at this stage, home-based programs should be offered to patients less likely to access or adhere to hospital-based cardiac rehabilitation.