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ABSTRACT OF THE 19TH CONGRESS OF ECHOCARDIOGRAPHY

Poster session: Miscellaneous

Echocardiographic assessment of cardiac remodeling in the high-level football players

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Introduction.— The aim of this study is to assess the morphological and hemodynamic cardiovascular changes of 24 high-level football players, using Doppler-echocardiography, and compare them to a similar control group.

Methods and results.— Twenty-four elite football players were matched to 24 normal subjects according to age, sex, and body surface. All participants had a clinical examination, resting ECG, Doppler-echocardiography and a measurement of maximal oxygen uptake (VO_2 max). The echocardiographic variables were compared between two groups by the Student's *t*-test and other statistical tests, using the SPSS 12 for Windows software. Compared to the control group, the wall thickness (10.49 ± 1.04 vs. 7.5 ± 2.04 mm, $P < 0.05$), the LV end-diastolic diameter (57.1 ± 3.70 vs. 41.2 ± 3.65 mm, $P < 0.01$) and left atrium surface (20.16 ± 2.03 vs. 16.16 ± 1.83 cm², $P < 0.01$) were significantly more important in football players. The LV and RV ejection fractions were similar in both groups. The RV long-axis diastolic diameter (8 ± 0.5 vs. 6.5 ± 1.1 mm, $P < 0.01$) and S-wave using DTI (0.17 ± 0.02 vs. 0.14 ± 0.02 , $P < 0.05$) were more important among football players.

Discussion.— The hemodynamic and morphological changes result from an acquired cardiac adaptation in athletes with important endurance and resistive efforts. The majority of players presented an intermediate-type of remodeling, but the more offensive ones had an endurance-type heart, whereas the defense players had a resistance-type aspect.

Conclusion.— This study on the cardiac remodeling in high-level athletes permits to have a distinctive approach between physiological and pathological remodeling. This remodeling varies according to the player's post and exercise capacities. In a football player, a correlation between physical level and physical capacity is plausible.

doi:10.1016/j.acvd.2011.03.080

Echocardiographic assessment of 40 veteran marathoners

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Introduction.— The aim of our study is to assess morphological, hemodynamic cardiovascular and pulmonary changes, in 40 veteran marathoners aged over than 40 years and compared to a control group using electrocardiogram, echocardiography, exercise testing and VO_2 max.

Methods and results.— Our study is prospective comparing two groups: group of 40 veteran marathoners and control group of forty

people. All participants underwent a clinical examination, electrocardiogram at rest, Doppler echocardiography, a stress test and the measurement of VO_2 max. Electric variables, echocardiographic and VO_2 max were compared between the two groups using the Student test and other statistical tools with the software SPSS 17.0. In the group of veteran marathoners, the wall thickness was (9.9 ± 1.5 vs 8.4 ± 1.4 mm in the control group; $P < 0.05$), the left ventricular diastolic diameter was (56.3 ± 3.40 vs 40.2 ± 3.5 mm in the control group; $P < 0.01$), and the surface of left atrium was (18.5 ± 3.9 vs 14.0 ± 3.5 cm² in the control group; $P < 0.1$). The VO_2 max was (48.9 ± 7.9 vs 18.5 ± 6 in the control group) ($P < 0.01$).

Discussion.— The hemodynamic and morphological changes are the results of a cardiac adaptation required in veteran marathoners who are subjected to moderately important efforts. They have not only cardiac remodeling but also an optimal filter then using of oxygen inspired dependent on years of training and the number of training sessions per week.

Conclusion.— Cardiovascular and pulmonary exploration in veteran marathoners aged over forty allows a distinction between electrical changes and cardiac remodelling in physiological and pathological conditions. These changes vary depending on years of training and hours of training per week. A correlation between their size and physical ability of veteran marathoners is plausible.

doi:10.1016/j.acvd.2011.03.081

Comparison between non-invasive coronary flow reserve and fractional flow reserve to assess the functional significance of left anterior descending artery stenosis of intermediate severity

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Background.— To assess the functional significance of left anterior descending artery (LAD) stenosis of intermediate severity (IS) (50–70% diameter stenosis) is challenging.

Objective.— To compare the value of non-invasive coronary flow reserve (CFR) to the invasive fractional flow reserve (FFR) in the setting of LAD stenosis of angiographic IS.

Methods.— Fifty stable consecutive patients (pts) (mean age 63 ± 13 years, 11 females, mean left ventricular ejection fraction $61 \pm 10\%$) with an angiographic proximal LAD stenosis of IS (55.5 ± 5% diameter stenosis, QCA), no previous anterior myocardial infarction, and with various vascular risk factors, were prospectively studied. They underwent FFR with intracoronary bolus adenosine (150 μg), and CFR using intravenous adenosine (140 μg/kg per minute over 2 min), in the distal part of the LAD, the same day in nearly all cases. CFR