Stress echo was performed during exercise in 17 patients and using dobutamine in 2. Peak systolic blood pressure was 193 ± 31 mmHg in these patients vs 193 ± 34 mmHg in patients with a large ischemic area (≥ 4 segments) but with significant coronary artery stenosis on angiography (ns).

Conclusion.— The item ''false positive'' stress echo must be discussed since nearly 10% of patients with a large ischemic area during the test have non significant coronary artery lesion. In our study, these patients were more often women evaluated during exercise. Systolic blood pressure level does not explain the WMA observed during the test.

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Exercise adaptation of the left ventricular myocardium in men over 50 years of age

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Background.— The cardiac consequences of extensive athletic activity in men over the age of 50 years are unknown.

Aims.— We intend to describe the remodelling that occur due to intensive athletic activity in men ≥ 50 years of age.

Methods.— We conducted a prospective analysis of 21 athletes ≥ 50 years of age. Fifteen sedentary healthy controls and ten patients diagnosed with a left ventricular hypertrophy who were all over the age of 50. All subjects underwent a resting and a sub-maximal exercise echocardiography in order to measure left ventricular systolic and diastolic functions.

Results.— Left ventricular (LV) volumes, which were similar at rest in the three groups, were higher in the athletes during exercise ($P < 0.01$). Systolic ejection volumes and longitudinal global left ventricular strains were greater at rest in healthy subjects (athletes and controls) in comparison to those in LVH-patients ($P < 0.01$). During exercise, the increase in longitudinal strain was higher in athletes than in the two other groups ($P < 0.05$). Concerning left ventricular relaxation, septal e'- and lateral e'-waves were higher both at rest and during exercise in the group of healthy subjects in comparison to those in patients ($P < 0.05$).

Conclusion.— Distinguishing physiology from pathology is challenging at rest, particularly in the elderly. However, exercise stress echocardiography helps. Only the changes in shape and in the longitudinal LV systolic function during exercise are significantly different between athletes and controls or LVH-subjects.

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Prevalence of coronary artery spasm during dobutamine stress echocardiography

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Background.— Previous care reports have suggested that dobutamine stress echocardiography may induce coronary artery spasm. The aim of this study was to assess the prevalence of coronary artery spasm during dobutamine stress echocardiography.

Methods.— Over a nine-year period (from November 2001 to October 2010), we reviewed all patients ($n = 2{,}224$) referred for dobutamine stress echocardiography. Criteria for selection included patients aged > 18 years and with dobutamine stress echocardiography. We systematically analysed all ECG performed during dobutamine stress echocardiography, allowing to detect ST elevation during the examination. All patients with ST elevation underwent a coronary angiography.

Results.— A dobutamine stress echocardiography was performed in 2,224 patients. In 20 patients, a ST elevation was observed stenosis was observed: ST elevation was observed in case of critical coronary stenosis in six patients and in case of chronic coronary occlusion in seven patients. Finally, seven patients (35% of patients presenting with ST elevation during dobutamine stress echocardiography; six men, mean age: 67 ± 11 years) had no significant coronary stenosis. The prevalence of coronary artery spasm during dobutamine stress echocardiography was 0.3%. In the last patient who presented with this clinical presentation, we induced a coronary artery spasm during coronary angiography with dobutamine perfusion and a second coronary angiography confirmed the diagnosis of coronary spasm after methergin testing.

Conclusion.— Coronary artery spasm during dobutamine stress echocardiography is rare but may occur. Its prevalence is estimated at 0.3%. Physicians should be aware of its presence in dobutamine stress echocardiography.

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Normal parameters of right ventricular mechanics during exercise in healthy individuals: A 2D speckle imaging study

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Background.— 2D speckle imaging is a useful tool to evaluate right ventricular (RV) function at rest; however, the response of the RV to exercise has not been well established.

Aim of the study.— This study attempts to determine RV mechanics at rest and during exercise in healthy subjects using 2D speckle imaging and usual parameters of RV function.

Methods.— We studied 12 male healthy volunteers (mean age: 24 ± 2 years) who underwent an intensive treadmill stress echocardiogram (GE Vivid E9) with levels of 30 Watts every 3 minutes. In addition to LV views, we stored apical 4C and 2C RV views at high frame rates and recorded PW DTI of the RV free wall at baseline, at 50%, 60% and 85% of theoretical maximum heart rate (TMHR) and during recovery. We measured TAPSE (mm), RV fractional area shortening (RV FAC, %), S maximal velocity (S max, cm/s) at each exercise level. We also measured RV strain (%) values in the basal (BAS), median (MED) and apical (AP) segment of the lateral (LAT) and inferior (INF) RV walls. We calculated a global RV strain as the mean of those six segments. We compared values at different levels of exercise.

Results.— Maximal charge was 180 to 210 W for all participants. Strain measurements could be performed in all patients until 60% of the TMHR, and in ten patients at 85%. Baseline and recovery values were similar. At every exercise level, FRAC, TAPSE and S were significantly higher than baseline values but all strain values tend to decrease, although not significantly. Baseline and 60% values are reported in Table.

Conclusion.— Despite an increase in all classical echocardiographic parameters of RV function, RV strain did not increase during exercise in normal patients. Increase in preload during exercise is responsible for an increase in RV end diastolic volume and an increase in following contraction according to Frank Starling mechanism. As longitudinal strain is an equivalent of myocardial fibre shortening fraction, one could assume that the magnitude of changes in longitudinal myocardial fibre lengthening and shortening during intensive exercise remains relatively proportional in healthy volunteers. Further studies should confirm these preliminary results and compare them to those obtained in patients with cardiac diseases.

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