Aortic valve sclerosis screening using a hand-held ultrasound device.

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Background: Aortic valve sclerosis (AVS), mitral annular calcification (MAC), and aortic root sclerosis (ARS) have been demonstrated to be markers of coronary artery disease. Aims: 1) To test the diagnostic potential of a hand-held ultrasound device for the screening for AVS, MAC and ARS in patients with known or suspected coronary artery disease (CAD). 2) To evaluate the relation between AVS, MAC and ARS and CAD assessed as rest or stress induced new wall motion abnormalities during dobutamine stress echocardiography (DSE).

Methods: Seventy-two patients (68% men, mean age 61±12 years) were referred for the evaluation of known or suspected CAD. All patients were examined with a hand-held device (HD) to assess AVS, MAC and ARS. Left ventricular long axis view, short axis, and 5 apical chamber views were acquired by 2 independent cardiologists using the HD and a standard echocardiography-system (SE). The HD was used as reference. AVS was scored using a 4-point grading scale: 1=normal, 2=mild, 3=moderate and 4=severe. MAC and ARS were defined as an increased echocoreflectance and thickness of the mitral annulus and of the anterior or posterior wall, respectively. Subsequently all patients were evaluated for rest and stress induced wall motion abnormalities.

Results: Aortic valve, mitral annulus and aortic root were visualized in 70 (97%) and 68 (94%) patients respectively with SE and HD (p=NS). AVS, MAC, and ARS were present in respectively 97%, 40%, and 60% using SE, and 92%, 33%, and 58% using the HD (p=NS). There was a good agreement between the 2 imaging devices for the visualization of all aortic valve cusps (right cusp 93%, left cusp 94.7%, left cusp coronary, 81%, and 94.7%). The agreement was also good for evaluation of MAC and ARS, respectively 89.7%, k=0.98 and 92.6%, k=0.96. During DSE wall motion abnormalities at rest and ischemic segments at peak were present respectively in 36 (50%) and 11 (23%) of patients. There was no correlation between the grade of AVS and the number of dysfuncional segments at rest or stress (p=0.20) or the number of ischemic segments at peak DSE (p=0.21).

Conclusion: Hand-held echocardiography is a simple, reliable and inexpensive tool to screen patients for AVS, MAC and ARS.

927 The performance of hand-carried ultrasound devices for assessment of global and segmental left ventricular function is improved with the use of echocontrast.

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Background: Contrast enhancement of the left ventricular (LV) endocardial border improves assessment of global and segmental systolic function. We evaluate whether this is also true with a hand-carried ultrasound device (HCU).

Methods: 12 patients were studied, before and after the IV injection of an echocontrast agent (SONOHART Plus) and a standard echocardiographic system (SES) HP 5500 system. Both systems have harmonic imaging capabilities. Two echocardiographers independently analysed all the studies. An endocardial visualization score index (ENVSI) was calculated as a mean of the 16 segments of myocardial function (ejection fraction) were assessed. Color Doppler assessment of valvular regurgitation (kappa=0.61 and 0.74 respectively), very good in the case of aortic regurgitation (kappa=0.80) and moderate in the case of tricuspid regurgitation (kappa=0.48). The differences in the assessment of aortic and mitral regurgitant jets correlated with the image quality (p<0.05). A confidence level for the segmental function score index (EVSI) was calculated as a mean of the 16 segments of myocardial function was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated roughly (as the ultrasound ejection fraction) was considered major. Ejection fraction was estimated rough...