

severe mitral annular calcification, atrial fibrillation, cardiac pacemaker, or other heart diseases such as dilated cardiomyopathy and rheumatic heart disease. We scanned the patients prior to and three months after renal transplantation. We used an ultrasonic diagnostic apparatus (F75[®], Hitachi-Aloka Company, Tokyo, Japan) with a UST-52105 cardiac probe (Hitachi-Aloka). After 10 minutes' rest, the patients lay in the left lateral decubitus position. ECG recording was performed throughout the study, which was done under quiet breathing. After a conventional echocardiography examination, an apical four-chamber view was selected, displaying the mitral valve. Color Doppler sampling volumes included the entire left ventricle, the mitral valve, and part of the left atrium. Dynamic images were acquired over three stable consecutive heartbeat cycles and stored for analysis off-line with commercial imaging software (DAS-RS1 version 3.0[®], Hitachi-Aloka). Maximum vortex area and maximum vortex intensity were measured during the left ventricular filling phase (including rapid filling phase and slow filling phase), the atrial systolic phase, and the left ventricular systolic phase. Data were processed using commercial software (SPSS 19.0[®], IBM, Armonk NY, USA). Numerical data are presented as mean \pm SD. Differences between preoperative and postoperative scans were compared using paired *t*-tests, with $P < 0.05$ being considered statistically significant.

RESULTS During all the phases, maximum vortex area in the preoperative scans compared with that in the postoperative scans were not significantly different ($P > 0.05$). During the left ventricular filling phase, the maximum vortex intensity in the preoperative scans compared with that in the postoperative scans was significantly different (6.22 ± 2.41 m²/s vs 9.44 ± 3.24 m²/s, $P < 0.05$). During the atrial systolic phase, the preoperative maximum vortex intensity was significantly higher than the postoperative value (37.12 ± 10.44 m²/s vs 24.33 ± 5.90 m²/s, $P < 0.05$). The left ventricular systolic phase maximum vortex intensity was significantly lower preoperatively than postoperatively (15.68 ± 4.66 m²/s vs 24.49 ± 5.71 m²/s, $P < 0.05$).

CONCLUSIONS Changes in left ventricular blood flow field parameters in patients before and 3 months after renal transplantation suggest partial recovery of left ventricular function after surgery.

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Fetal echocardiography in the diagnosis of fetal cardiomyopathy and literature review

Hao Xiaoyan, Yihua He

Department of Ultrasound, Beijing Anzhen Hospital, Capital Medical University

OBJECTIVES The purpose of comparative analysis of fetal cardiomyopathy (Fetal Cardiomyopathy, FCM) ultrasonographic features is to explore the value of fetal echocardiography in the diagnosis of FCM and its complications.

METHODS 19 fetus with FCM or suspected with fetal cardiac primary lesions from 11 360 fetal echocardiography examinations were analyzed.

RESULTS The detection rate of FCM is 0.167% in our center. There are 10 fetus with dilated cardiomyopathy (biventricular 4 fetus, right ventricle four fetus, left ventricle 1 fetus and right atrium 1 fetus), 2 fetus with hypertrophic cardiomyopathy, fetal 4 fetus with endocardial fibroelastosis (primary type 1 fetus, secondary type 3 fetus), 3 fetus with non-compaction of the ventricular myocardium (biventricular 2 fetus, right ventricular 1 fetus). The Biventricular ventricular was the easiest to be implicated in fetus with FCM in our center.

CONCLUSIONS Fetal echocardiography can make the diagnosis of FCM and definite its classification accurately, and it can also assess the changes of fetal cardiac function and hemodynamics, estimate the prognosis, and thus develop the management strategies of the perinatal and long term follow-up.

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Superiority of Two-Dimensional Speckle Tracking Echocardiography in Detecting Familial Hypercholesterolemia with Normal Ejection Fraction

Bo Jiang, Ya Yang

Department of Echocardiography, Beijing Anzhen Hospital, Capital Medical University, Beijing, China 100029

OBJECTIVES Familial hypercholesterolemia (FH) is characteristic of high risk of cardiovascular disorder and shortened lifespan in great

require of early diagnosis and treatment. A novel tool of Two-Dimensional speckle tracking echocardiography (2D-STE) allows noninvasive and angle independent measurement of global and regional myocardial abnormalities. The aim of this study was to assess whether STE can be useful to detect subclinical cardiac involvement in FH.

METHODS Forty-seven FH patients (27M, 20F, mean age 21 ± 14 years) with normal ejection fraction and thirty-seven healthy matched controls underwent transthoracic Doppler echocardiography (TTDE) and 2D-STE examinations. Standard echocardiographic parameters, global longitudinal, circumferential and radial strain (GLS, GCS, GRS) and global systolic and diastolic strain rate (GSRs, GSRe, GSRA) and regional strain and strain rate were detected respectively. Linear regression analysis was performed between LDL-C with variables.

RESULTS FH patients showed larger left ventricular (LV) dimensions and thicker LV walls, increasing aorta's pressure gradient and velocity. Longitudinal and circumferential strain significantly reduced whereas radial's was increased. GSRs and GSRe significantly lower in FH versus controls (-1.18 ± 0.29 vs -1.42 ± 0.24 , $p = 0.01$. 1.68 ± 0.50 vs 2.13 ± 0.48 , $p < 0.0001$). LDL-C showed significant correlation with GLS, GCS, GRS. The percentage of myocardium deformation of coronary artery is left anterior descending (LAD) (80%), left circumflex (LCX) (66.7%), right coronary artery (RCA) (75%). Average strain in three axis (Strain_{SL, SC, SR}-Avg) of LAD, LCX, RCA is -17.15 ($-38.12 \sim 72.14$), -10.41 ($-29.41 \sim 75.9$), -17.39 ($-36.22 \sim 77.25$).

CONCLUSIONS 2D-STE could accurately evaluate LV systolic and diastolic function and make early FH diagnosing. Reductions in longitudinal and circumferential deformation are compensated for by increasing radial strain in FH with normal LV ejection fraction (EF). Myocardial abnormalities will happened earlier in early diastolic than late diastolic and SRE is a sensitive parameter to predict early diastolic function abnormality. Hypercholesterolemia is significantly associated with LV morphologic. In our study main coronary artery of myocardium deformation counting most is LAD and lesion worst is LCX.

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Diagnostic accuracy of 320-slice dynamic volume computed tomography angiography for evaluation of coronary stent patency and restenosis

Xuelian Liu,¹ Dinghui Liu,² Shujie Yu,² Bin Zhou,² Baoshun Hao²

¹Department of Radiology, The Third Affiliated Hospital of Sun Yat-sen University; ²Department of Cardiology, The Third Affiliated Hospital of Sun Yat-sen University

OBJECTIVES To evaluate the diagnostic accuracy of 320-slice dynamic volume CT angiography (CTA) compared with selective coronary angiography (SCA) in assessment of coronary artery stent patency and restenosis.

METHODS 68 patients (48 males, 65.9 ± 11.5 years) who were performed percutaneous coronary intervention before 1 year were consecutively enrolled. All patients with 97 stents were referred to 320-slice DVCT coronary angiography (Aquilion One, Toshiba Medical) followed by selective catheter coronary angiography 1 to 5 days later. The catheter coronary angiography was performed via radial or femoral arterial puncture. The image quality of CTA was analyzed on a 3-point scale.

In-stent restenosis was defined as more than 50% narrowing of the lumen and evaluated by two radiologists blinded to the results of SCA. The results of CTA were compared with SCA as the reference standard. The sensitivity, specificity, positive and negative predictive value of detecting coronary restenosis were calculated.

RESULTS The image quality acquired from CTA in patients with stents were moderate and acceptable to evaluate coronary restenosis. On segment analysis, the sensitivity, specificity, positive and negative predictive value of 320-DVCT coronary angiography in detection of significant coronary in-stent restenosis were 91.2%, 98.3%, 90.7% and 98.9%, respectively.

CONCLUSIONS 320-slice DVCT angiography can provide acceptable coronary artery stent imaging. It has a high accuracy for the detection of in-stent restenosis and may be a non-invasive and valuable coronary imaging modality for the follow-up of coronary artery stent patency. Due to its very high negative predictive value, it is accurate to exclude coronary artery restenosis in patients.