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Direct measurement of left ventricular outflow tract by newly developed transarthoracic real-time 3D-echocardiography increases accuracy in assessment of aortic valve stenosis.  
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Background: Evaluation of aortic valve stenoses is one to the most important current clinical applications of echocardiography. The widely employed continuity equation requires measurement of the left ventricular outflow tract (LVOT) area. We aimed at investigating whether direct measurement in a volume data set is superior to conventional calculation from the LVOT-diameter.  
Methods: We performed left ventricular outflow tract measurement in 20 normal subjects and 15 patients with moderate to severe aortic stenosis with a newly developed transarthoracic real-time three-dimensional echocardiography technique (SONOS 7500, Philips, Best, Netherlands). The off-line 3D-evaluation software (TomTec, Munich, Germany) allows free choice of section plains within the acquired volume data set. The aortic valve area was calculated by two independent observers according to the continuity equation from the mean of LVOT area values as determined from several sequential systolic frames. These results were compared to area estimates obtained by M-mode LVOT-diameters (area = PI (d/2)^2/4). Additionaly we planimetrically calculated aortic valve orifices were compared to direct planimetry by transseptal examination or invasive measurements.  
Results: In all cases both observers found a significant reduction in LVOT-area during systole (p < 0.01). Frequently, the contraction of the LVOT resulted in an elliptical shape, as underscored by a significant decrease of the longitudinal/transverse axis ratio (p < 0.01). Determination of aortic valve orifice deviated less from invasively or planimetrically measured values (mean difference: 0.04cm^2) than conventionally calculated LVOT-areas based on M-mode (mean difference: 0.16cm^2).  
Conclusion: The transarthoracic real-time 3D-echocardiography technique offers better estimates of aortic valve area, approximating planimetric and invasive measurements, as compared to application of the continuity equation to conventional M-mode echocardiography.

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Can plasma NTproBNP assess right ventricular overload in patients with acute pulmonary embolism?  
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Objective: Right ventricular (RV) dysfunction can be echocardiographically detected in half of pts with acute pulmonary embolism (APE). Plasma NTproBNP released upon myocardial stretch reflects left ventricular dysfunction in congestive heart failure. Therefore we assessed if NTproBNP relates the degree of RV overload in APE.  
Material and Method: We investigated 74 pts (27M, aged 63±17 years) with proven APE. On admission blood samples were collected for NTproBNP assay (Roche, ECLA) and TTE was performed for the determination of RV overload.  
Results: APE group comprised 54(73%)pts with RV overload (RV+) defined by RV/LV <0.6 and/or TVPG >30mmHg at acceleration time of pulmonary ejection (>80ms, while 20(27%) others showed no alteration in RV morphology or function (RV-). Plasma NTproBNP was significantly lower in RV- than in RV+ (median 0.018 vs 0.069 pg/ml). Plasma NTproBNP was not associated with concurrent clinical and laboratory parameters.  
Conclusions: The negative correlation (NOT) between RV intensity and NTproBNP was only 0.13% and 0.01% in RV- than in RV+ (median 0.018 vs 0.069 pg/ml). Plasma NTproBNP was not associated with concurrent clinical and laboratory parameters.  

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Tissue Doppler imaging (TDI) in patients with aortic valve stenosis - clinical usefulness and diagnostic accuracy.  
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Background: Mitral annular velocities derived from tissue Doppler imaging (TDI) complement traditional variables in the evaluation of left ventricular (LV) perfor- 
mance. The mitral E/E' ratio has been suggested as an estimate of LV filling pres- 
sures in selected subsets of patients (pts.). However, the diagnostic usefulness of TDI has not been studied in patients with moderate or severe aortic valve stenosis (AS).  
Methods & Results: 17 pts. with moderate or severe AS (aortic valve area 0.8±0.4 cm²/m²) were included (mean pressure gradient 61±13 mmHg, 64±11 y., AS group) and 29 age-matched asymptomatic controls (age 60±11y., CON group) underwent echocardiographic measurements of ejection fraction (EF) and mitral inflow velocities (E, A, E/A-ratio). Mitral annular velocities (S', E', A') derived from pulsed TDI were obtained at the mitral septal annulus. In AS pts., LV end-diastolic pressure (LVEDP) and cardiac index (CI) were derived from left and right heart catheterization.  

Moreover, ROC curve analysis revealed that plasma NTproBNP >200pg/ml showed 98% sensitivity and 55% specificity for the detection of RV overload.  
Conclusions: Plasma NTproBNP reflects its severity of RV overload and may be helpful in its detection in patients with acute pulmonary embolism.

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Mechanism and prevention of tricuspid regurgitation in patients transplanted according to the biatrial anastomosis technique: an echocardiographic study on 150 patients.  
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Background: Tricuspid regurgitation (TR) is a common post-transplant complica- 
tion, especially after biatrial anastomosis. We investigated the mechanism of TR development after biatrial anastomosis in order to prevent this complication.  
Methods: 150 patients with biatrial anastomosis (post-transplant times: 1-12 years) 
underwent comprehensive echocardiographic assessments, including morphologi- 
cal and functional tricuspid valve (TV) evaluations, right atrial (RA) geometry mea- 
surements, and measurements of the tricuspid annulus (TA) systolic excursion and 
tissue Doppler wall motion velocity at different levels of the TA and atrial anastomo-

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ROC curve of NTproBNP for RV overload

AUC = 0.84

Sensitivity
t
1-specificity
0.0 0.4 0.8 1.2 1.6 2.0 2.4 2.8 3.2 3.6 4.0 4.4 4.8

I-sensitivity

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