12

Comparative assessment of ascending aortic aneurysms in Marfan patients using CT versus TTE

Olivier Milleron*, M. Ansalam, P. Ou, M.C. Henry-Feugeas, F. Arnault, A. Vahanian, G. Jondoue
Centre hospitalier universitaire de Marfan Service de cardiologie Hôpital Bichat, Paris, France.
* Auteur correspondant : olivier.milleron@bch.aphp.fr

Background Contrast-enhanced computed tomography (CT) is routinely used as a complementary technique to trans-thoracic echocardiography (TTE) for assessing thoracic aortic aneurysms (TAA). However different measures can be obtained on CT and there are no recommendations on which to use.

The objective was to determine which CT measurements most closely match reference TTE measurements in Marfan patients with TAA.

Methods TTE measurements were obtained using the leading edge-to-leading edge technique in end-diastole on the parasternal longitudinal view. ECG-gated CT measurements were obtained, using the inner-to-inner technique in end-diastole by double oblique reconstruction: on three-cavity view (3C), left ventricle,aorta view (LV Ao), and strict transverse plane passing through the maximal diameter “cusp to commissure” and “cusp to cusp” for each cusp. CT and TTE were performed within one month.

Results 44 Marfan patients (39±19 years, 48% men) were included. Dilatation of the ascending aorta was maximal at the level of the sinuses (TTE diameters: mean 47.5±3.3mm). TTE diameters were similar to 3C, LV Ao (mean differences: 2.2 and-0.1mm, p=NS) and to the three “cusp to cusp” diameters (mean differences ranging from 0 to 1.1mm, p=NS), whereas “cusp to commissure” diameters were all statistically smaller than TTE (3.6mm, 2.9mm and 3.7mm, p≤0.01).

Conclusions Inner-to-inner “cusp to cusp” diameter measured on an ECG-gated CT should be used for comparison with 2D TTE aortic diameter at the level of the sinuses of Valsalva in patients with thoracic aortic aneurysms.

13

Relationship between tricuspid regurgitation and RV morphology and function in PAH

Christine Selton-Suty*, Sarah Dorlet, Olivier Huttin, Damien Voilliot, Clément Venner, Vladimir Manenti, Thibaut Villemin, Arnaud Olivier, Yves Juilliére, François Chabot
Centre hospitalier universitaire Estaing, Pédiatrie, Clermont-Ferrand, France.
Auteur correspondant : christine.selton@free.fr

The differential contribution of pressure load and right ventricular (RV) dilatation in the genesis of tricuspid regurgitation (TR) is not well established in Pulmonary hypertension (PH).

We reviewed TTE of 77 patients (45 male, mean age 62±14 yrs, mean sPAP 67±21mm Hg) with pre-capillary PH. TR was graded in 3 levels (39 mild, 19 moderate and 19 severe) of severity both semi-quantitatively with color Doppler and quantitatively with flow convergence method when possible. sPAP level was separated in 3 groups according to the terciles of its distribution. Parameters of RV function were measured in all pts. A multinomial logistic regression analysis was carried out to identify independent predictors of TR severity.

Results ANOVA comparison according to TR severity showed more dilated RV (RV annulus, RV median diameters, RV/LV ratio), more dilated RA, higher sPAP, higher tricuspid E/A ratio (but similar E/E' ratio) and a trend toward lower RV function in pts with more severe TR. The comparison between the 3 groups of sPAP levels showed more dilated RV (RV median diameters, RV/LV ratio), a trend toward lower RV function and a higher tricuspid coaptation distance in pts with high sPAP. The Chi square comparison between the 3 groups of TR severity and 3 groups of sPAP levels was globally significant (p≤0.005) but revealed that 13% of patients with severe TR were in the lowest tercile of sPAP and that 17% of patients in the highest tercile of sPAP had only mild TR. Multinomial logistic regression analysis revealed that sPAP (p=0.006) and RV median end-diastolic diameter (p=0.015) were the only independent predictors of TR severity.

Conclusion Our study confirms that the degree of severity of TR is influenced not only by the level of sPAP but also by the degree of RV remodeling and dilatation and not by the level of RV dysfunction. This complex relationship between TR and sPAP among patients with PAH suggests a possible influence of other individual factors.

14

Evaluation of coronary artery wall echogenicity in Kawasaki disease acute phase

Fanny Riou*, Aurélie Chalard2, Aurélie Chaussert1, Jean-René Lusson2, Etienne Merlin1, Claire Dauphin2*
1 Centre hospitalier universitaire Estaing, Pédiatrie, Clermont-Ferrand, France.
2 Centre hospitalier universitaire Gabriel-Montped, Cardiologie, Clermont-Ferrand, France.
* INSERM, CIC1405, Clermont-Ferrand, France.
Auteur correspondant : friou@chu-clermontferrand.fr

Background Kawasaki Disease (KD) diagnostic is based on clinical, laboratory and echocardiographic criteria. Coronary artery brightness is a criterion for diagnosis KD at the acute phase, but it is qualitative and subjective. Evaluation depends on the experience of individual echocardiographers.

Objectives Diagnostic value of quantitative evaluation of echogenicity of the coronary artery wall (CAW) in KD at the acute phase.

Methods A retrospective case-control study was performed in Clermont-Ferrand university hospital. Echocardiograms of 0 to 18 years old children between January 2012 to January 2014 was enrolled: 19 KD confirmed, 14 acute febrile illness and 34 apyretic children with congenital heart disease without coronary disease. Two dimensional echocardiography views were obtained using iE33 -Philips- with different probe. The value of echogenicity was evaluated in decibel on 2mm2 Regions Of Interest (ROI) using QLAB software -Philips-.

For each examination, precordial short axis cross-section at level of aortic valve, 3 ROI are placed at the coronary artery environment, 3 ROI at the proximal segment of the left or right CAV, and 3 ROI at the aorta. Quantitative evaluation of echogenicity of CAV was performed with the measurement differences between ROI Intraobserver variability was 0.62.

Results Echogenicity of right CAV was significantly higher in the acute phase of KD than the other groups -p<0.001, area under curve ROC=0.8-. Also it has been observed for left CAV -p=0.14-.

Debate and outcome This first study highlights the interest of echogenicity quantitative measure of CAV for KD diagnostic. Echogenicity of CAV might be helpful in diagnostic for atypical or incomplete KD. The reproducibility has to be confirmed by a prospective study with more children suspected of KD.