PP-003

Impairment in Aortic Elastic Properties and Mechanics of Ascending Aorta in Patients with Bicuspid Aortic Valve

Selen Yurdakul[1], Betül Cengiz[2], Şükrü Taylan Şahin[2], Ayşen Bozkurt[2], Saide Aytekin[2]
[1]Istanbul Bilim University Cardiology Department, Istanbul, [2]Florence Nightingale Hospital, Cardiology Department, Istanbul

Background: Bicuspid aortic valve (BAV), which is one of the most common congenital heart defects, is a genetic disorder of the aortic valve and ascending aorta. Aortic dilation is common in subjects with BAV. In the present study we aimed to investigate the elastic and mechanical properties of the aorta by using a novel strain imaging method, "velocity vector imaging" (VVI), in patients with BAV.
Methods: We studied 22 patients with BAV (age 43.31±4.5, 57 % female) and 20 age and sex-matched healthy subjects with tricuspid aortic valve. All the patients and healthy controls were subjected to assessment of aortic strain, stiffness and distensibility measurements of M-mode images of the aorta. VVI measurements were obtained from off-line analysis of standard B-mode ultrasound images of the ascending aorta.
Results: Aortic strain (5.2±1.5 % to 13.91±4.77 %, respectively, p=0.0001), and distensibility 0.19±0.06 % to 1.6± 0.77 %, respectively, p=0.0001) were significantly impaired in patients with BAV, compared to the control group. Aortic stiffness was markedly increased in patients with BAV (4.45±1.73 to 2.6±1.3, respectively, p=0.001).Regarding VVI-based strain measurements, peak longitudinal strain (S),strain rate (SR) and total longitudinal displacement (TLD) values were significantly impaired in patients with BAV, compared to the controls. (S: 11.49±1.2 % to 14.6±2.58 %, p=0.03; SR: 0.57±0.03 1/s to 1.66±0.40 1/s, p=0.0001; TLD: 3.98±1.78 mm to 10.42±2.38 mm, p=0.0001).
Conclusıons: BAV is associated with reduced elasticity of the aorta. Longitudinal wall motion of ascending aorta is also impaired in patients with BAV. VVI is a novel strain imaging method which provides detailed data in assessing the longitudinal deformation of the ascending aorta, in patients with BAV.

PP-004

Significance of Epicardial Fat Volume Analysis in Hemodialysis: Clinical and Laboratory Correlations

Kevser G Balcı[1], Aysel Türkvatan[2], Alper Kırkpantur[3], Mustafa M Balcı[1], Uğur Arslan[4]
[1]Yuksek Ihtisas Hospital, Department of Cardiology, Ankara, [2]Yuksek Ihtisas Hospital, Department of Radiology, Ankara, [3]RFM Renal Treatment Services, Nephrology, Ankara, [4]Samsun Research and Education Center,Department of Cardiology, Samsun

Background: Epicardial adipose (fat) tissue (EAT) is the true visceral fat depot of the heart that accounts for approximately 20% of total heart weight. Recently, a close relationship between coronary artery disease CAD and EAT has been shown in end stage renal disease patients. The aim of this study was to test the association of EAT with more detailed clinical comorbidities and the novel osteocyte derived protein, sclerostin.
Materıal and Methods: Epicardial fat volume (EFV), coronary artery calcification score (CACS) and arteriovenous fistula (AVF) calcification were evaluated by means of computed tomography as previously described. Moreover, patients underwent B-mode ultrasonography of common carotid artery for estimating carotid artery intima media thickness (CIMT) and the presence of plaques. Serum biochemical parameters, 25-hydroxy vitamin D3 and sclerostin levels were also measured.
Results: Mean EFV was higher compared to healthy controls (155±10 vs 110±30 cm^3, p=0.02). EFV correlated with Kt/V urea (r=-0,464, p=0,006), serum albumin (r=-0,355, p=0,039), 25-hydroxy vitamin D3 (r=-0,313, p=0,024) and sclerostin (r=0,331, p=0,017). According to serum 25-hydroxy vitamin D3 quartiles, patients in the lowest quartile (<11 microgr/L) had higher EFV compared to patients with the highest quartile (>30 microgr/L) (170±69 vs 119±53 cm^3, p=0,027). No significant differences in EFV among serum sclerostine quartiles were demonstrated.

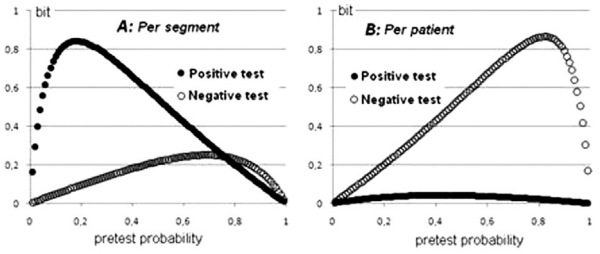
Moreover, positive correlations between EFV and CACS (r=0,350, p=0,009), CIMT (r=0,387, p=0.003) and AVF calcification (r=0.372, p=0.007) were noted. Patients with angiographically documented peripheral arterial disease had higher EFV compared to ones without disease (165±42 vs 123±39 cm^3, p=0.042). Multivariable adjusted regression analysis revealed that presence of diabetes (49% increase compared to non-diabetics, P=0,023) and decreased serum 25-hydroxy vitamin D3 levels were independently associated with increased EFV (21% increase per 1-SD decrease in 25-hydroxy vitamin D3 concentration, P=0,045).
Dıscussıon: The pathophysiological impact of these close associations found in this work needs further studies.

PP-005

Information Theoretic Approach to Assess Diagnostic Value of Computerized Tomographic Coronary Angiography

Mustafa Kılıçkap[1], Ahmet Ergun Karaağaoğlu[2], Kerim Esenboğa[1], Çağlar Uzun[3], Çetin Atasoy[3], Deniz Kumbasar[1], Çetin Erol[1]
[1]Ankara University Medical Faculty Cardiology Department, Ankara, [2]Hacettepe University Medical Faculty Biostatistics Department, Ankara, [3]Ankara University Medical Faculty Radiodiagnostic Department, Ankara

Background: It is important to know at which pretest probability a diagnostic test gives maximum information. Information theory quantifies the information content of a test, expressed as "bit", and shows at which pretest probability the test gives maximum information. We assessed the diagnostic value of computerized tomographic coronary angiography (CTA) by using information theory.
Methods: Conventional coronary angiography was used as gold standard test, and 50% diameter stenosis was used as cut-off value for severe stenosis. Information content (mutual information), which gives overall test performance, was calculated across the pretest probabilities between 0.01 and 0.99 for CTA and for a perfect test that has a sensitivity and specificity of 0.999999. Ratio of the area under the curves of these values (CTA/perfect) denotes what percent of diagnostic information is obtained compared to a perfect test. Relative entropies give the information of positive and negative test results separately. Analyses were made as per patient (n=69) and per segment (n=1076) basis.
Results: Per segment analysis gives more information than per patient analysis (CTA/perfect values were 33% and 15%, respectively). Maximum information is obtained for intermediary artery (CTA/perfect=91%) and for proximal segments (CTA/perfect =39%). Relative entropy values demonstrate that positive test is more informative in per segment analysis (Figure 1-A), however, negative test is more informative in per patient analysis (Figure I-B). Diagnostic yielding of positive test result increases to its maximum at pretest probability of about 20% in per segment analysis, and that of negative result increases to its maximum at pretest probability of about 80% in per segment and per patient analysis (Figure 1A-B).
Conclusıons: Relative entropy graphics give clinically important information in terms of assessing the pretest probability at which diagnostic value of CTA reaches its maximum. This study shows that CTA gives more information if the result is negative in per patient analysis; however, the opposite is true for per segment analysis.



PP-006

Myocardial Bridging in Etiology of Left Ventricular Dysfunction in Young Subjects

Mustafa Aparci[1], Murat Yalcin[2], Zafer Isilak[2], Zekeriya Arslan[3], Cengiz Ozturk[4], Ugur Bozlar[5], Ejder Kardesoglu[2]
[1]Etimesgut Military Hospital, Department of Cardiology and Aviation Medicine, Ankara, [2]Haydarpasa Training Hospital, Department of Cardiology, Istanbul, [3]Mevki Military Hospital, Department of Cardiology, Ankara, [4]Eskişehir Military Hospital, Department of Cardiology and Aviation Medicine, Eskisehir, [5]Gulhane Military Medical Academy, Department of Radiology, Ankara

Aims: Myocardial bridging is a congenital abnormality of coronary arteries which may cause anatomically constriction of coronary lumen. Thus it may hemodynamically disturb and restrict the coronary flow at diastole when the myocardial oxygen demand extremely increased. So it may underlie in the etiology of left ventricular (LV) dysfunction such as left ventricular dilatation or systolic dysfunction. In the previous, young subjects with left ventricular dilatation had been diagnosed and followed as non-ischemic dilated cardiomyopathy. However myocardial bridging on coronary artery may be one of the causative factors in the etiology of LV dysfunction in young subjects. We retrospectively evaluated the findings on echocardiography and multi-sliced computerized tomography (MSCT) coronary angiography and the lesion properties in young subjects who presented with LV dysfunction.
Materıal-Method: Medical recordings of young patients with the diagnosis of dilated cardiomyopathy were retrospectively evaluated.
Results: Young subjects with LV dysfunction were grouped according to results of MSCT Angiography such as normal (n=10, age 22.1±0.73, ranging 20,3-23.6 years old) and myocardial bridging (n=12, age 26.3±1.01, CI 24,1-28,5 years old). Both group had similarly increased left ventricular dimensions and reduced ejection fractions (Table 1). Young ones with LV dysfunction and normal coronary arteries presented mainly with dyspnea whereas those with myocardial bridging presented with angina or dyspnea on effort. Presence of wall motion abnormality of echocardiography in both of the groups was similar. LAD artery (n=11) was the mostly coexisting artery with presence of Intermediate, Cx and right coronary arteries (3, 4, and 1, respectively). Myocardial bridging was mainly located in the middle segment of the coronary arteries. Mild and moderately compression on coronary arteries were similar in rates.
Conclusıon: Myocardial bridging on coronary arteries was not uncommon in the etiology of LV dysfunction in young subjects. So LV dysfunction in young ones should not be attributed to an idiopathic origin and may be referred to further imaging tests such as MSCT Angiography but not interventional coronary imaging. Since

POSTERS