Summaries of Articles

Clinical Investigations

Effect of Conversion to Sinus Rhythm on Left Ventricle Regional Myocardial Tissue Velocities in Patients with Lone Atrial Fibrillation

O. Bolca, M. Eren, B. Dağdeviren, Ö. Soylu, A. Yıldırım, T. Tezel

This study was planned to evaluate the effect of conversion to sinus rhythm on left ventricle (LV) regional myocardial tissue velocities by PW tissue Doppler in patients with lone atrial fibrillation (AF). Twenty-seven patients with lone AF were enrolled. PW tissue Doppler tracings of mitral annulus, interventricular septum (IVS), posterior wall and apical segments of LV were obtained. Sm, Em and Am waves were taken as means of the measurements of 5 consecutive beats. The sinus group was composed by the measurements which were repeated on days 14±2 following conversion to sinus rhythm. The control group was composed of 10 healthy volunteers having a similar age profile.

There were no changes in Sm and Am velocities for each segment when patients were converted to sinus rhythm from AF ($p>0.05$), whereas there were increase in Am velocities ($p<0.05$). The Em and Am velocities of all segments were found to be significantly lower than those of the control group ($p<0.05$) both in patients with AF and sinus rhythm but there were no significiant differences for Sm velocities. The Sm velocities of IVS of patients when they were in either AF or sinus rhythm were lower than the mitral annulus and free wall and higher than the apical Sm velocities ($p<0.05$). There were no differences between segments for Em and Am velocities for patients either in AF or sinus rhythm. There was a positive correlation between LV ejection fraction (EF) and mitral annulus Sm velocities when patients were in AF rhythm ($r:0.87$, $p<0.05$).

The following statements were concluded from the LV myocardial tissue Doppler tracings obtained from patients with lone AF: 1) the decrease in Em wave velocity reflects the increase in LV stiffness and the decrease in elastic recoil; 2) the decrease in Am wave velocity reflects the contribution of atrial contraction on myocardial Am wave formation and Am wave velocity decreases with AF, 3) there is a significant positive correlation between mitral annulus Sm velocity and LV EF.

Key words: Lone atrial fibrillation, tissue Doppler imaging, segments of left ventricular myocardium

Clinical, Echocardiographic and Arrhythmogenic Features of Hypertensive Patients with Normal Coronary Arteries and Ischemia on Myocardial Perfusion Scintigraphy

D. Ural, E. Ural, G. Kahraman, A. Ağaçdiken, A. Vural, C. Aktolun, B. Komsuoğlu

Ischemic hypertensive patients with normal coronary arteries have been a research area for a long time. However studies have been intensively focused on the angiographic but not on clinical features of these patients. In this study we investigated clinical, echocardiographic and arrhythmogenic features of the patients depicted above. Fifty-four hypertensive patients (30 female, 24 male, mean age 57±9 years) who showed a reversible perfusion defect on scintigraphy but no significant angiographic stenosis were included in the study group. Eighty hypertensive patients (58 female, 22 male, mean age 57±10 years) with normal myocardial perfusion scintigraphy served as a control group. After detailed histories were taken from the patients, physical examination, biochemical analysis, echocardiographic examination and 12-lead ECG recording were performed. Arrhythmic events were investigated in 26 patients with and in 30 patients without perfusion defects using 24-hours Holter monitoring. When we assessed clinical and echocardiographic findings with logistic regression analysis, the factors related with the presence of myocardial perfusion defects were found as male gender, duration of high blood pressure, left ventricular end-diastolic dimension and mitral A wave velocity in the whole study group ($p<0.001$, $p=0.002$, $p=0.01$ and $p<0.001$, respectively). The most important factors were the duration of high blood pressure and mitral A wave velocity for female hypertensives ($p=0.02$ and $p=0.006$); left ventricular end diastolic dimension, ejection fraction and mitral A wave velocity for male hypertensives ($p=0.007$, $p=0.01$ and $p=0.002$, respectively). There was no

relation ship between the presence of perfusion defects and age, smoking, HDL- cholesterol level, relative wall thickness and left ventricular mass. In patients with perfusion defects neither ventricular nor supraventricular arrhythmia frequency were increased during the Holter monitoring. Frequency of complex arrhythmia and repolarization dispersion were similar in the study and control groups. Hence, reversible myocardial perfusion defects in hypertensive patients with normal coronary arteries were frequently accompanied by diastolic dysfunction and relative systolic dysfunction, especially in male patients. However, additional arrhythmogenic effect was not observed in these patients.

Key words: Scintigraphy, hypertension, echocardiography arrhythmia

Change in Aortic Stiffness and Distensibility in Patients with Diabetic Coronary Artery Disease: Effect of Glycerol Trinitrate

S. Dağdelen, M. Ergelen, S. Soydinç, B. Yaymacı, A. İzgi, N. Kurtoğlu, İ. Dindar

Diabetes mellitus is a major risk factor for coronary artery disease and aortic dysfunction. The aim of this study was to determine the changes in the aortic elastic properties in patients (pts) with diabetic coronary artery disease and to search the effect glycerol trinitrate (GT). Method: Patients with coronary artery disease were allocated into two groups. Study group (SG) consisted of 17 pts (13 women 4 men; mean age 58.4±9.4 years) with diabetes mellitus, and the control group (CG) 20 pts (14 women, mean age 56.0±10.7 years) without diabetes mellitus. Aortic systolic and diastolic dameter indexes and aortic distensibility and stiffness index were measured before and after 200 µg GT (intravenously) by transthorasic echocardiography. Results: There were no statistically significant differences between the two groups before GT with regard to age, sex, smoking, systolic and diastolic blood pressures, aortic systolic and diastolic diameter indexes. Aortic distensibility was found to be lower and stiffness index was found to be higher in SG (for the distensibility 0.0015± 0.0005 vs 0.0026±0.0007 $mmHg^{-1}$, $p<0.001$ and for the stiffness index 43.74 ± 13.76 vs 24.62 ± 6.33, $p<0.001$). After GT aortic distensibility increased and stiffness index decreased significantly in both groups. However, the differences between SG and CG for aortic distensibility and stiffness index disappeared after GT. High-degree negative correlation was found between aortic distensibility and stiffness index in both groups before and after GT. Conclusion: Aortic distensibility is lower and stiffness index is higher in coronary artery pts with diabetes mellitus than without diabetes mellitus. Glycerol trinitrate induced significant increase in aortic distensibility and decrease in aortic stiffness index in both groups. Improvement in aortic functions after GT was higher nominally in the diabetic group.

Key words: Aortic distensibility and stiffness index, diabetes mellitus

Reconstructive Surgical Treatment of Ebstein's Anomaly

G. İpek, K. Kırali, M.B. Rabuş, S.N. Ömeroğlu, H.B. Erdoğan, D. Göksedef, A. Gürbüz, C. Yakut

The aim of this study was to show early and long-term results of the reconstructive treatment of Ebstein's anomaly. Between 1985 and November, 2000, 8 patients (six of whom female) were operated. Mean age was 14.2 ± 6.7 years (range, 5 to 23). Sinus rhythm prevailed in all patients. Pulmonary embolism due to right atrial thrombosis was the presenting symptom in one patient. Associated anomalies were ASD (37.5%) and VSD (12.5%). The tricuspid valve was located 2.3 ± 0.9 cm (range, 1.2 - 4.6 cm) below the mitral valve. We have performed Danielson procedure (50%), tricuspid annuloplasty (37.5%) and Hardy procedure (12.5%) as reconstructive techniques. The mean follow-up period was 7.3 ± 3 years (range, 2.5 to 12.5).

There was no early mortality and one late death. Transient complete AV block developed in one-half of the patients. One patient was rehospitalized with severe right heart failure 30 months post operatively. Another one with previous right atrial thrombosis presented again with the same finding 6 years after operation. The right atrial dimensions (5.9 ± 0.5 cm; range, 5 to 6.5) decreased significantly ($p = 0.001$) after surgery (4.5 ± 0.5; range, 4 to 5.5).

Reconstructive treatment of Ebstein's anomaly with reducing tricuspid insufficiency and remodelling of

the right atrial and ventricular chambers favorably affects the functional capacity of the patients. These have to be followed up closely for the possibility of right heart failure in the late postoperative period.

Key words: Ebstein anomaly, tricuspid, annuloplasty, reconstruction

Comparison of Ambulatory Blood Pressure Parameters in Patients with White Coat Hypertension Versus Normotensive Subjects and Untreated Hypertensive Patients

M. Cemri, U. Hodoğlugil, M. Ceyhan, D. Barlas, H. Dörtlemez, H. Zengil

White coat hypertension is defined to be present when an individual is hypertensive in the physician's office, but normotensive when their blood pressure (BP) is measured with ambulatory blood pressure monitoring (ABPM). To assess the clinical importance of the white coat hypertension, we aimed to compare ambulatory blood pressure parameters in patients with white coat hypertension versus normotensive subjects and untreated hypertensive patients. The study was carried out on 96 hypertensive patients (57 F, 39 M; mean age: 51±1.3 years) and 132 normotensive subjects (101 F, 31 M; mean age 41.4±1.0) according to office measurements. After office BP measurements were recorded 3-4 times, ABPM was applied for 48 hours to each subject. We calculated 48-hour of, day and night mean load (proportion of elevated BP over a certain limit for a period) values for systolic and diastolic BPs. Of the 96 hypertensive patients, 20 (20.8%) had white coat hypertension (12 F, 8 M; mean age: 52.9±3.7 years) and 76 had sustained hypertension. Although 48-hour day and night mean and load values for systolic and diastolic BPs in patients with white coat hypertension were significantly lower than in those with sustained hypertension, they usere significantly higher than in normotensive subjects. These results suggest that white coat hypertension may be of clinical importance.

Key words: White coat hypertension, ambulatory blood pressure monitoring.

Rising Obesity Indices in 10-year Follow-up of Turkish Men and Women: Body Mass Index Independent Predictor of Coronary Events Among Men

A. Onat, İ. Keleş, V. Sansoy, K. Ceyhan, A. Çetinkaya, B. Erer, B. Yıldırım, Ö. Başar

In the original and new cohorts of the Turkish Adult Risk Factor Study, body mass index (BMI), waist circumference and waist-to-hip ratio (WHR) were cross-sectionally assessed among 2445 participants (mean age 51 ±14 years). In addition, BMI was prospectively evaluated over 10 years in over 2000 men and women. Coronary heart disease (CHD) was diagnosed based on clinical findings and Minnesota coding of resting electrocardiograms. At standardized age, mean BMI soared in a decade by +1.29 and +1.26 kg/m^2, respectively, in men and women. In the last survey, in men and women, respectively, mean BMI was 26,8 and 29,2 kg/m^2, and mean waist circumference was 91.8 and 89,4 cm, respectively.

Waist circumference, the best correlate of other risk parameters in both genders, exhibited correlations of moderate degree with (systolic or) diastolic pressure, plasma triglycerides, apo C-III and apo B, inverse correlations of mild degree with HDL-cholesterol, smoking and physical activity and direct correlation with blood glucose. In a prospective logistic regression analysis, BMI significantly and independently predicted nonfatal and/or fatal coronary heart disease (CHD) risk in men placing 9% excess risk for each increment of 1 unit. Both waist circumference and body weight were significantly associated, after age adjustment, with prevalent CHD in both genders on bivariate analysis. It was concluded that the rising prevalence of (central) obesity in Turkish adults is contributing particularly among men to the existing high cardiovascular morbidity and mortality.

Key words: Anthropometric measurements, central obesity, coronary heart disease, epidemiology, obesity prevalence, risk factors

Importance and Interaction of Homocysteine and Lipoprotein (a) as Risk Factors in Young Patients With Myocardial Infarction

M. Sucu, A.A. Karadede, A.V. Temamoğulları, M.S. Ülgen, S. Batum, N. Toprak

Although the effects of elevation of homocysteine and lipoprotein (a) in plasma have widely been

investigated recently as a risk factor in coronary artery disease, the resuts of the studies and meta analyses are still controversial. To that end, we investigated the significance of homocystein and lipoprotein (a) levels as risk factors as well on their interaction, in a group of 92 patients with to acute myocardial infarction and a group of 30 controls, all among 45 years-old. Although plasma homocystein levels were significantly higher in patients who sustained a to myocardial infarction compared to the control group [geometric mean 12.4 µmol/L (%95 CI 10.9-13.9 µmol/L) and 10.0 (mol/L (%95 CI 5.1-14.9 µmol/L)], Lp(a) levels were similar in both groups. When homocystein and lipoprotein levels were divided in to quartiles, MI risk was significantly increased (OR 1.54) in the fourth quartile of homocystein. There was no significant difference between quartiles of lipoprotein (a). When all subjects were separated according to the 90th percentile of homocystein and lipoprotein (a) of the control group, patients with values above this percentile for homocystein had a significantly independent risk for MI in both univariate and multivariate analysis (p=0.01, OR 1.87 %95 CI 1.34-2.75). Moreover lipoprotein (a) had no potential effect on the risk potential of homocystein. The strongest independent risk factors in subjects under 45 years-old were smoking (p=0,0004) and total cholesterol/HDL-C ratio (p=0.01). Homocystein levels were higher in smokers compared to non-smokers (p=0.004). It was, there fore concluded that an increased level of plasma homocystein was a significant independent risk factor for myocardial infarction in those under 45 years-old, where as elevated lipoprotein(a) level was not.

Key words: Myocardial infarction, homocysteine, lipoprotein(a)

Comparison of Long-tip Electrode Catheter and Standard Catheter for Radiofrequency Ablation of Typical Atrial Flutter

E. Oğuz, A. Akyol, İ. Erdinler, K. Gürkan, F.T. Ulufer

The linear radiofrequency catheter ablation between tricuspid annulus and vena cava inferior is an effective and safe method for the treatment of typical atrial flutter. The present study was planned to assess whether the long-tip electrode ablation catheter, which can allow the creation of larger and deeper ablation lesions the than standard catheter (4-mm tip electrode), is more effective for linear ablation of typical atrial flutter. A total of 24 ablation procedures (4-mm tip in 11 patients, 8-mm tip in 13 patients) were performed to 21 consecutive patients. The mean procedure- (78 ± 40 / 41 ± 40 min, p=0.002) and fluoroscopy-durations (47 ± 27 / 18 ± 5 min, p=0.0006) were shorter; the mean numbers of energy applications (9 ± 4.1 / 5.7 ± 4.1, p=0.0003) were lower; acute success rate (73% / 92%, p=0.05) was higher with long tip electrode catheters as compared with the standard catheter. The recurrence rate was 25% with 4-mm tip electrode catheter while it was 8% with 8-mm-tip electrode catheter during the mean follow-up period (12 ± 6 months). Furthermore, chronic success rate was higher with long tip electrode catheter (54% / 84%, p=0.03). These findings demonstrate that long tip electrode catheter (8-mm) is more effective than the standard catheter (4-mm), and it reduces the procedure-duration and exposure to radiation for linear catheter ablation of typical atrial flutter.

Key words: Atrial flutter, catheter ablation

Case Reports

Cardiac Malformations in Siamese Twins

T. T. Elmacı, F. Yazıcıoğlu

Conjoined twining, one of the rarest and most fascinating malformations in the newborn, presents a major challenge to both researchers and clinicians. The etiology of conjoined twins is unknown, however, two main theories, fission and fusion, have been proposed. Conjoined twins demonstrate great variability in their site of union and degree of organ-sharing. The antenatal diagnosis of conjoined twins is essential for planning a rational and proper obstetrical and perinatal management. In this article we describe cardiac malformations of two pairs of conjoined twins, diagnosed antenatally. An insufficient amount of information is available regarding the etiology of these cases. We therefore believe that their descriptions might provide help in embryological, surgical and obstetrics research.

Key words: Thoracopagus, parapagus, siamese twins, congenital heart disease