

Summaries of Articles

Investigations

Total Cholesterol in Men, Cholesterol Ratio in Women Best Markers of Coronary Disease in Turkish Adults: 8-year Trends of Lipids Show Hypertriglyceridemia Rising Among Men

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At an 8-year follow-up of the original cohort of the Turkish Adult Risk Factor Study, plasma lipids were determined in over 1800 subjects (mean age 48.6 ±14), and trends were studied after stratifying for sex and age groups. Measurements were carried out with a Reflotron apparatus; triglycerides were measured in postabsorptive phase in only two-thirds of the cohort. Random plasma samples were validated in a reference laboratory. Based on the previously obtained age-related lipid curves of Turkish adults, and with the purpose of assessing the overall change at constant age, an allowance was made for 8 years of aging in mean total cholesterol (TC) and triglyceride concentrations by +7.5 and +1.1 mg/dl in men, and by +11.2 and +13.6 mg/dl in women, respectively: Overall net mean TC and triglyceride levels of the sample population rose over 8 years by 2.1 and 11.5 mg/dl, respectively, in men; by contrast triglyceride levels displayed no significant difference among women and mean cholesterol values decreased by 2.3 mg/dl. The number of Turkish men with hypertriglyceridemia (>200 mg/dl) is thus currently estimated to have risen to 3.25 million.

Among 2575 adults comprising the new as well as the original cohort, a significant but moderate correlation was noted in univariate analysis between the two lipid fractions and systolic or diastolic pressures in both genders, while an inverse correlation existed in women between triglyceride and HDL-cholesterol levels. In a model comprising 8 risk parameters, multivariate analysis revealed TC among men and TC/HDL-C ratio in women to be significant independent markers of coronary heart disease. Age-adjusted odds ratio (OR) of the latter ratio between the upper quintile and the lower two quintiles was 1.73.

In men a rise of TC by 50 mg/dl was associated with a 36.3% increase of coronary risk.

In conclusion, a) a 9% increase in plasma triglyceride levels in men constituted the main change in plasma lipids among Turkish adults, b) this finding, together with the observed rising trend in obesity, may account for the reported rise of blood pressure levels in men, c) TC values in men, and TC/HDL-C ratio in women were shown to be significant and best independent markers of coronary heart disease among Turks.

Key words: Cholesterol, coronary heart disease, epidemiology, lipid lowering treatment, plasma triglycerides, prevalence of hyperlipidemia, risk factors

Indices of Obesity and Central Obesity in Turkish Adults: Distinct Rise in Obesity in 1990-98 More Pronounced Among Men

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Data on body mass index (BMI), waist circumference and waist-to-hip ratio (WHR) among 2551 participants (mean age 48.6 ±14) of the original and new cohorts of the Turkish Adult Risk Factor Study were cross-sectionally assessed by stratifying for sex and age groups. In addition, longitudinal changes in BMI over 8 years in 1805 men and women as well as in waist and WHR over 3 years among 1099 subjects were evaluated. With the purpose of assessing the overall net change at constant age, an allowance was made for the years of aging in mean anthropometric measurements, based on the previously obtained age-related relevant curves in Turkish adults. After adjusting for age, mean BMI was calculated to have soared by +1.22 and +1.12 kg/m², respectively, in men and women. The prevalence of obesity (defined as ≥30 kg/m²) was 18.7% among men and 38.8% among women, indicating the current number of obese men to be 2.5 million and obese women 5.3 million. Among men mean waist circumference widened by a net 8 mm to 94.2 cm over the previous 3 years and WHR by a net 0.008 ratio to 0.927. The

respective figures in women were 7 mm and 0.014 to lead to a mean of 90.8 cm and 0.846 in 1998. These changes were considered a trend during a brief 3-year period.

Waist circumference and BMI revealed significant correlations of moderate degree in both genders with systolic or diastolic pressures, plasma triglycerides, HDL-cholesterol and TC/HDL-C ratio. On multivariate analysis including age, BMI was significantly and independently associated with coronary heart disease (CHD) risk in women indicating a rise of 11% excess risk for each increment of 1 unit. Both waist circumference and WHR were significantly ($p<0.03$) associated with CHD in both genders on univariate analysis. Odds ratio of waist circumference >95 cm for CHD risk in women was 1.6. In a logistic regression model, other anthropometric measures failed to have an independent contribution to age in the male population sample. It was concluded that the soaring prevalence of obesity (and probably of central obesity) in Turkish adults is likely contributing via rising prevalences of hypertension and diabetes to cardiovascular morbidity and mortality.

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

Morphologic Characteristics of Valve Thrombus in Patients with Prosthetic Valve Associated with Embolic Events

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Although transesophageal echocardiography (TEE) is considered to be gold standard in the diagnosis of prosthetic valve thrombus (PVT), relationship between morphologic characteristics defined by TEE and embolic complications has not been determined. The purpose of our study is to investigate the relationship between morphologic characteristics of PVT and history of recent embolic events (EE). Study group comprised 67 pts (M 28, F 39, mean age 39.7 ± 12) with PVT associated with mitral ($n=53$), aortic (A) valves ($n=3$) and tricuspid valve ($n=1$) detected by TEE. Prosthetic valve

thrombus was classified by morphologic criteria (i.e. mobility, obstruction) determined by TEE. Obstruction was defined as significant leaflet restriction and narrowing of valve (mitral valve area <1.5 cm², mitral mean gradient ≥ 10 mmHg, aortic mean gradient >30 mmHg). Mobility was defined as the presence of mobile portion. According to these criteria, four types of PVT were diagnosed; (1) mobile-nonobstructive (NO) ($n=19$), (2) immobile NO ($n=12$), (3) immobile obstructive (O) ($n=32$), and (4) mobile O ($n=4$) PVT. Recent EE was defined as clinically documented cerebral, peripheral or pulmonary embolism in the last 30 days prior to TEE study. Incidence of EE was 60%, 54.5%, 25% and 66% in pts with mobile-NO, immobile-O, and immobile-O type mitral PVT, respectively. In pts with aortic PVT, EE was documented in 1 out of 2 pts with MNO, and 1 out of 7 (14%) pts with immobile-O PVT. In pts with concomitant mitral and aortic PVT, EE was detected in 2 out of 1 pts with mobile-NO PVT. In comparison to group without EE, MVA (cm²) was larger (2.31 ± 0.83 vs. 1.54 ± 0.9 , $p=0.001$), mitral mean gradient (mmHg) was lower (5.44 ± 3.4 vs 11.8 ± 8.5 , $p<0.0005$), diameter of MPVT base (mm) was lower (5.44 ± 3.4 vs 11.8 ± 8.5 , $p<0.0005$), diameter of MPVT base (mm) was smaller (11.0 ± 5.3 vs 17.4 ± 6.3 , $p<0.0005$), and frequency of mobility was higher (47.8 % vs 23.7%, $p<0.05$) in group with EE. Age, gender, rhythm, duration from valve replacement to diagnosis, type of mechanical valve and frequency of left atrial thrombus and spontaneous echo contrast were not different between groups with and without EE ($p>0.05$). In stepwise multivariate analysis, two independent variables associated with EE were mobility and diameter of base portion of PVT.

Conclusions: 1) In pts with PVT, TEE appears to be a reliable method to determine morphologic characteristics associated with risk stratification, 2) thrombus mobility seems to be associated with EE, and 3) patients with smaller and mobile nonobstructive PVT may be prone to higher risk for EE than pts with fixed, obstructive PVT.

Key words: Prosthetic valve, thrombus, transesophageal echocardiography, embolic event.

Evaluation of Diastolic Functions by Midventricular Flow Pattern in Left Ventricular Hypertrophies with Different Shape

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The sampling of midventricular flow has recently begun to be utilized for the evaluation of diastolic functions. This study was planned to evaluate the changes observed on the midventricular flow pattern in patients with diastolic dysfunction and symmetric or asymmetric left ventricular hypertrophy (LVH). The groups consisted of patients with symmetric LVH (n=17), asymmetric LVH (n=13) and the control group (n=10). The left ventricular end-systolic and end-diastolic diameters, interventricular septum and posterior wall diastolic thickness and left ventricle mass index were measured from echocardiographic recordings whereas E and A wave velocity, E wave deceleration time, RE (time from R wave on the electrocardiogram to peak of the Doppler E wave), RD (time onset early diastolic flow), DE (defined as the time from onset of flow to peak of E wave), the peak velocity of A wave, and the intervals between the peak (RA peak) and end (RA end) of A wave were measured by PW recordings obtained from mitral valve and midventricular level. The differences between E wave velocity, RE and RD intervals for the study groups and the control group were significant ($p<0.05$) whereas the differences between the symmetric and asymmetric LVH groups were not significant.

The intervals RA peak and RA end of mitral valve level and midventricular level were increased in the study groups ($p<0.05$). There was no significant difference between DT and DE intervals and A wave peak velocity for both levels ($p>0.05$). Hence, the diastolic flow patterns of mitral valve and midventricular level showed no significant differences in the control group, but at the diastolic dysfunction states such as hypertrophied ventricles with augmented atrial contraction, the late diastolic flow velocity and intervals of samples obtained from mitral valve level or midventricular level showed significant differences.

Key Words: Left ventricular hypertrophy, midventricular flow pattern, diastolic dysfunction

Comparison of Dobutamine Stress Echocardiography with Myocardial Perfusion Scintigraphy for Detecting Coronary Artery Disease in Patients with Left Bundle-Branch Block

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The aim of this study is to compare the efficacy of dobutamine stress echocardiography (DSE) and exercise myocardial perfusion scintigraphy (MPS) for the noninvasive identification of coronary artery disease (CAD) in patients with left bundle-branch block (LBBB).

Thirty-one patients with complete, permanent LBBB (19 men, 12 women, mean age : 59 ± 9) referred with different complaints (chest pain, shortness of breath, palpitation etc.) were evaluated prospectively. Patients with previous myocardial infarction, known to have valvular disease or cardiomyopathy were excluded. DSE, exercise MPS and coronary angiography were performed to all patients within 6 months by examiners who were blinded to other test results. Stress induced wall thickening impairment or worsening of wall motion in a normal or hypokinetic region at rest were regarded as ischemia in DSE. The ischemic region was localized according to the coronary artery territories. Exercise MPS was performed with Tc99m tetrofosmin in 20 patients and TI-201 in 11 patients by either planar or SPECT methods. A reversible defect, more than 15%, at rest was considered as ischemia. The results were compared with the existence of $>50\%$ luminal diameter coronary stenosis in the angiographic examination. Eight patients (22%) had CAD in the angiographic study. Others had normal coronary arteries. Two of the normal coronary artery group had diffuse left ventricular dysfunction and one had segmental wall motion abnormality. Sensitivity, specificity and diagnostic accuracy were 88%, 91%, and 90% respectively for DSE. Sensitivity, specificity and diagnostic accuracy were 75%, 96%, and 90% respectively for MPS.

We conclude that both DSE and exercise MPS are accurate tests for the noninvasive identification of CAD in LBBB patients.

Key words: Left bundle-branch block, dobutamine

stress echocardiography, exercise myocardial perfusion scintigraphy.

Radiofrequency Catheter Ablation of Accessory Pathways: Results of 131 consecutive patients

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Patients with supraventricular tachyarrhythmias mediated by accessory pathways (AP) and refractory to medical therapy are treated effectively by radiofrequency (RF) catheter ablation technique. This safe and effective procedure has replaced the surgical interventions and direct current ablation previously used. Results of radiofrequency catheter ablation procedures in 131 consecutive patients with APs were here in reported.

Sixty-seven patients were men and 64 women with the ages ranging 12 to 66 years (37.1 ± 12.6). All patients had paroxysmal palpitations resistant to antiarrhythmic drugs which deteriorate their quality of life. Of the 131 patients 110 had orthodromic 5 had antidromic AV reentrant tachycardia, 12 had orthodromic and antidromic tachycardia, 4 had orthodromic tachycardia and atrial fibrillation, 1 had orthodromic tachycardia, antidromic tachycardia and atrial fibrillation, and 1 had only atrial fibrillation. The AP conduction was manifest (WPW syndrome) in 109 patients (82%) and concealed in 24 patients (18%). There was one AP in 129 patients and 2 APs in 2 patients. Seventy-three of the APs (55%) were located at the left free-wall, 48 (36%) were posteroseptal, 7 (5%) were right free-wall and 5 (4%) were midseptal. RF ablation was successful in 114 of 131 patients (87%) and 116 of 133 APs (87%). The procedure was performed in one session in 110 patients and in 2 sessions in the remaining 21 cases. Mean RF application number was 5 ± 4 (range 1-15), mean RF duration was 67 ± 43 second (range 10-240), mean procedure duration was 122 ± 56 minutes (range 30-240) and mean fluoroscopy duration was 37 ± 23 minutes (range 10-90). In 3 patients (2.3%) minor complications occurred. These complications were minimal pericardial effusion, fever lasting for 72 hours and lower extremity thrombophlebitis. The patients were followed for 22.5 ± 12 months. During

this clinical recurrence was observed in 3 patients (2.3%) and successful repeat ablation was performed in one of these patients. The other two patients refused the second procedure.

These results confirmed that RF ablation treatment is a safe and effective mode of treatment in patients with drug resistant supraventricular tachyarrhythmias due to accessory pathways. Increasing experience in this area will lead to higher success rates

Key Words: Accessory pathways, radiofrequency catheter ablation

The Effects of Cisapride on Ventricular Repolarization in Children

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Life-threatening ventricular dysrhythmias mainly attributed to QTc prolongation have been reported in adults and children using cisapride, a prokinetic agent that facilitates gastrointestinal motility. Recent adult and pediatric case reports have suggested an association of malignant ventricular dysrhythmias with administration of cisapride in conjunction with drugs that inhibit its cytochrome P-450 metabolism. Therefore, we prospectively studied infants and children receiving cisapride without any concomitant drug, to analyze the time-related effects of cisapride on ventricular repolarization. Standard 12-lead resting ECGs were obtained from 20 patients (mean age: 6.1 ± 4.1 years) before cisapride (0.8-1.2 mg/kg per day) therapy, and after 3rd, 7th days and 1 month of therapy. The corrected QT interval (QTc), dispersion of QT and QTc (QTD, QTcD) were calculated. Data from these study patients were compared with a control group of 372 normal children.

There were no clinical adverse effects including palpitations, presyncope and syncope reported during the study. Baseline QTc, QTD and QTcD measurements were not different from control group. Mean QTc values at 7th day and 1 month of cisapride therapy were significantly higher from the control group ($p < 0.01$ and < 0.001 , respectively). Mean QTc at 7th day and 1 month of therapy were also found sig-

nificantly higher than that of baseline value ($p < 0.05$, and < 0.01 , respectively). Mean QTD and mean QTcD values during the cisapride treatment were not different from baseline values and controls. The results of this study suggest that cisapride treatment may cause prolongation of ventricular repolarization without causing increased heterogeneity of repolarization (QT dispersion). However, clinical significance of this prolongation is unclear, because all the patients in this study group have been asymptomatic without signs of dysrhythmia.

Key Words: cisapride, dysrhythmia, QT interval, QT dispersion

Case Report

Permanent Pacemaker Implantation in an Adult Patient With a Rare Congenital Anomaly and Dilated Cardiomyopathy

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A 66-year old adult male with known dextrocardia required permanent pacemaker for symptomatic bradyarrhythmia associated with recalcitrant symptomatic congestive heart failure due to dilated cardiomyopathy with four chamber enlargement. Intrahepatic interruption of left-sided inferior vena cava with azygos continuation which made a loop in the thorax before entering into an abnormally shaped right atrium, right-sided persistent superior vena cava and hepatic veins connected directly to right atrium from below were the associated systemic venous return abnormalities demonstrated by repeat contrast injections.

Key words: Pacemaker, dextrocardia, interrupted inferior vena cava, persistent superior vena cava