

Summaries of Articles

Clinical Investigations

Prevalence and Clustering of Risk Factors for Coronary Heart Disease in Turkish Adults, and the Associated Relative Risks

A. Onat, M. Ş. Şenocak

In a cross-sectional population-based study of 3689 Turkish adults 20 years of age or over, 101 men and women were diagnosed to have coronary heart disease (CHD), and 72 were suspected of CHD. Prevalence and clustering of the studied risk factors were investigated.

Among those with the disease, all but 13 % carried at least one risk factor and 46 % multiple risk factors. Hypertension prevailed in 72 patients, hypercholesterolemia (≥ 240 mg/dl) in 25 patients, and 86 men and women were current or past smokers.

Hypertension was defined as a systolic (≥ 160 mmHg), diastolic (≥ 95 mmHg) pressure, or both. Those who reported to take antihypertensive medication were also considered to have hypertension which constituted the most important risk factor in this sample population in both sexes.

Its overall age-adjusted odds ratio was 2.86, followed by hypertriglyceridemia (≥ 200 mg/dl) with an odds ratio of 2.02. In women, an additional significant factor was obesity (body mass index ≥ 30 kg/m²) with an odds ratio of 1.76, while diabetes and hypercholesterolemia revealed to be significant only in those aged 20-59 years, and smoking in women aged 30-59 years.

Among men, smoking was a borderline significant risk factor for coronary disease, whereas hypercholesterolemia did not prove to be so. These findings, somewhat at variance with those of industrialized nations, are based on a relatively low prevalence of hypercholesterolemia in Turkish adults.

Incidence of Ventricular Arrhythmia in Hypertensive Left Ventricular Hypertrophy

S. Aytekin, V. Aytekin, İ. Fıratlı, M. Öztürk, C. Demiroğlu

The incidence of ventricular arrhythmia was examined with 24-hour ambulatory Holter recordings in three groups of patients. 25 hypertensive patients in the first group had left ventricular hypertrophy (LVH) [LVH (+) group] and 25 hypertensive patients in the second group had no LVH [LVH (-) group] in echocardiographic evaluation. 25 healthy subjects in the third control group had similar distribution in age and sex. There were no significant differences with respect to age, sex and other risk factors in these three groups.

In 24-hour Holter recordings the mean number of single ventricular premature beats (VPB) were 13 ± 21 , 28 ± 33 and 162 ± 346 in the control, LVH (-), and LVH (+) groups, respectively. The difference between the LVH (+) and the control groups was significantly different ($p < 0.05$). The mean number of total VPBs were 13 ± 21 , 28 ± 33 and 214 ± 445 in the control, LVH (-), LVH (+) groups. LVH (+) group was significantly different than the other two groups ($p < 0.05$). Complex VA were found in 4 (16 %) cases in the control group, in 7 (28 %) and 11 (44 %) patients in LVH (-) and LVH (+) groups. LVH (+) group was significantly higher ($p < 0.05$) than the control group. We believe that the high incidence of ventricular arrhythmias is related to LVH.

Assessment of the Fetal Heart Functions and Umbilical Arterial Flow Velocity Using Pulsed Wave Doppler in Twin Pregnants

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In this study, 9 twin pregnancies (TP) and a control group of 25 healthy pregnancies (HP) were assessed for umbilical arterial flow velocity (UAFV) and fetal heart functions (FHF) using pulsed Doppler

equipment. We chose following parameters for the umbilical artery, average flow velocity (A), peak systolic flow velocity (S), late diastolic flow velocity (D), resistance index (RI), pulsatility index (PI), S/D and D/A ratio. Also for FHF, we chose early and late mean (E-VM and A-VM) and peak (E and A) flow velocities, E/A ratio, ratio of atrial flow volume to transmitral flow volume (AFV/TFV) in the mitral and tricuspid regions.

We observed that in the TP S/D ratio, RI and PI values were higher than the HP ($p<0.02$, $p<0.01$, $p<0.05$ respectively) and the D/A ratio was also lower ($p<0.05$) than the HP. Mitral flow calculations A-VM, A and AFV/TFV ratios in the TP were higher than in the HP ($p<0.05$, $p<0.025$ and $p<0.025$ respectively). Also E/A ratio were lower than in the HP ($p<0.05$). The results of this study suggest that there are significant differences in FHF and UAFV in the TP. These results were attributed to growth discrepancy of twin pregnancies.

Acute Effects of First Generation Calcium Antagonists on Left Ventricular Diastolic Functions in Healthy Individuals and in Essential Hypertension Patients

A. Işık, C. Lüleci, H. Çeliker, N. Arslan, E. Dönder, E. Alaşehirli

The acute effects of sublingual nifedipine (10 mg), IV verapamil (0.15 mg/kg and maximal 10 mg), and oral diltiazem (30-60 mg) on left ventricular diastolic functions in mild and moderate hypertensive cases (total 32 cases) and in 17 healthy individuals were studied. Drug administrations were made at 72 hours intervals. Pulse and blood pressure were measured, and two-dimensional, M-mode, and continuous Doppler echocardiograms were taken by standard techniques, during baseline and presumed period of peak effect of each drug. The parameters of total mitral flow, early diastolic flow (E wave), and late diastolic flow (A wave) were determined.

In hypertensive patients, nifedipine increased the mitral and atrial mean (MVM, AVM) and peak (E, A) flow velocities ($p<0.0005$, for each of them). It did not change the ratio of E/A. Because of a 20 % increase attained in AVM and 11 % in MVM com-

pared to baseline, it raised the supplementary effect of atrial filling on total filling (AFV/TFV %) (8 %, $p<0.025$). Verapamil increased MVM and E (6 %, 10 %, $p<0.05$, $p<0.0005$ respectively), and did not affect late diastolic filling. Hence, it decreased the rate of E/A (10 %, $p<0.005$) but did not affect AFV/TFV %. Diltiazem decreased the flow velocities of A wave in this group, the rate of E/A (10 %, $p<0.005$) was increased, and AFV/TFV % (7 %, $p<0.025$) was decreased.

In healthy individuals, nifedipine increased AVM (22 %, $p<0.05$) and thus raised AFV/TFV % (20 %, $p<0.025$). Verapamil did not affect the transmitral flow velocities. Diltiazem caused a decrease in MVM by 7 %, in AVM by 12 % and in A by 5 % ($p<0.005$, $p<0.025$, $p<0.025$, respectively) but had no effect on the rate of E/A and AFV/TFV %. Hence, all three drugs affected the left ventricular diastolic functions in a different manner and the effects of these drugs are different in hypertensive than normotensive individuals.

The Assessment of Left Atrial Spontaneous Echocontrast by Transesophageal Echocardiography

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The assessment of left atrial spontaneous echocontrast (SEC) by transesophageal echocardiography (TEE) and the correlation of SEC with left atrial width (LAW), mitral valve area (MVA), atrial fibrillation (AF), left atrial thrombus (LAT) and thromboembolic complications (TEC) were studied in 70 patients (pts) with rheumatic mitral valve disease by transthoracic echocardiography (TTE) and TEE. In 23 (33 %) of 70 pts SEC was detected (SEC [+]) pts. The remaining 47 (67 %) pts without SEC were designated as SEC [-] pts.

LAW mean value was 59 ± 16 mm in SEC (+) and 49 ± 4 mm in SEC (-) pts ($p<0.05$). MVA mean value was 1 ± 0.3 cm² in SEC (+) and 1.5 ± 0.5 cm² in SEC (-) pts ($p<0.01$). AF was found in 20 pts (8 %) in SEC (+) and 7 pts (14 %) in SEC (-) groups ($p<0.0001$). LAT was found in 11 pts (48 %) in SEC (+) and in 1 pts (2 %) in SEC (-) groups ($p<0.0001$). Ten (14 %) of 70 pts presented TECs. SEC was detected in 6 (60

%) of 10 pts with TEC and in 17 (28 %) of 60 pts without TEC ($p<0.05$). Thus, in the group in which SEC was detected by TEE, LAW mean value, the incidence of AF and LAT were significantly high, and MVA mean value was significantly low. SEC was also found significantly high among the pts with TECs.

Significance of Reciprocal ST-Segment Depression in Inferior Leads During Acute Anterior Myocardial Infarction

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We compared the clinical and coronary angiographic features of 126 patients (Group A) with inferior ST-segment depression with 93 patients (Group B) without inferior ST depression during acute anterior myocardial infarction (AMI). Compared with Group B, patients in Group A had higher mean serum peak CPK (1126 vs 888 U/L, $p<0.025$), and CK-MB (85 vs 49 U/L, $p<0.005$) values, RBBB (9.5 % vs 1.1 %, $p<0.01$), ventricular tachycardia and fibrillation (15.9 % vs 6.5 %, $p<0.05$). Coronary angiography was performed in 68 (54 %) patients in Group A within 2.6 ± 1.9 months of AMI and in 49 (53 %) patients in Group B within 2.4 ± 2.3 months. There was no significant difference between the number of coronary artery lesions in the two groups. The site of lesion in left anterior descending artery (LAD) was not significantly different in patients with single - LAD disease either. We conclude that reciprocal ST-segment depression in inferior leads during acute anterior MI is associated with more extensive infarction and a complicated course.

Transcatheter Closure of Patent Ductus Arteriosus in 10 Children

A. Bilgiç, A. Çeliker, N. Özbarlas

Between April and July 1991, we attempted transcatheter umbrella closure using the Rashkind PDA occluder, of patent ductus arteriosus in 10 patients. The patients ranged in age from 18 months to 11 years and their weights from 9.7 to 35 kg. The ductus at its narrowest diameter varied from 3 to 9 mm. Complete closure was achieved in 8 patients soon after the procedure was carried out. One patient retained residual ductal murmur despite cor-

rect placement of the occlusion device. One patient who had ductal Doppler flow pattern immediately after procedure was found to have been freed from this pattern and complete closure was achieved four months later. Postrelease embolization did not occur. No patient developed any vascular complication.

Echocardiogram in the Diagnosis and Surgical Treatment of Patients with Severe Pulmonary Stenosis and Intact Ventricular Septum

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For the application of surgery without catheterization we studied 9 neonates with critical pulmonary stenosis (PS), or pulmonary atresia with intact ventricular septum (PA:IVS) and 9 infant with severe PS or PA:IVS who needed urgent palliation or correction. All patients were diagnosed by only M-mode, 2-D (two-dimensional) and Doppler echocardiography. Operative procedures and postmortem findings were evaluated.

With the identification of the presence of mobile valves with normal thickness by M-mode and 2-D echocardiography, 11 patients were diagnosed to have classical pulmonary stenosis. In 4 patients, the dysplastic valve was identified based on the following characteristics: the valve was very thick and immobile, systolic dome was absent, and valve leaflets were partially adherent to the pulmonary artery wall. Doppler techniques were used confidently for qualifications of the severity of the pulmonary stenosis, presence of PDA (patent ductus arteriosus) and tricuspid regurgitation. Pulmonary atresia was considered in 3 patients with the observation of the absence of both "a" waves and opening movements in M-mode and 2-D echocardiograms. In Doppler echocardiogram, a high velocity continuous flow pattern due to left to right ductal jet flow in the main pulmonary artery and the absence of the anterior systolic flow due to pulmonary stenosis confirmed the diagnosis of pulmonary atresia. Results obtained by M-mode, 2-D, and Doppler echocardiography were confirmed by surgical findings and autopsy studies.

We conclude that preoperative diagnosis of neonates with critical pulmonary stenosis and pulmonary atresia with intact ventricular septum by M-mode, 2-D and Doppler echocardiography, is clearly an alternative method to cardiac catheterization which can increase operative morbidity and mortality.

The Correlation Between the Clinical and Echocardiographic Findings in Isolated Ventricular Septal Defect

G. Ahunbay, T. Onat, A. Sarıoğlu, G. Batmaz

Echocardiographic and clinical findings in 120 patients with isolated VSD were evaluated in order to evaluate the relationship between them. In this series, perimembranous defects were most frequent (76 %), followed by subarterial and muscular defects. There was a good correlation between the size of the left ventricle and the size of the defect. Pulmonary hypertension of third degree occurred in large defects alone and did not accompany small defects. The correlation between the size of the VSD and cardiothoracic ratio (CTR) was very significant ($r=0.56$, $n=113$). CTR showed a specificity of 83 % and sensitivity of 62 % with respect to the size of the defect.

The correlation between CTR and the echocardiographic size of the left ventricle was also very high. CTR showed a sensitivity of 66 % and a specificity of 81 % with the size of the left ventricle. Considered multifactorially CTR correlated best with both size of the defect and that at the left ventricle, ($r=0.72$, $n=67$). CTR showed a sensitivity of 85 % for patients with large defects as well as large left ventricle and a specificity of 93 % in patients with small defects and normal left ventricle. The quantity of echocardiographic left-to-right shunt disclosed a sensitivity of 76 % and a specificity of 73 % with the clinical estimate of it. The pattern of right ventricular hypertrophy in the ECG showed a sensitivity of 100 % and a specificity of 84 % in the setting of echocardiographically-estimated presence of pulmonary hypertension. It was concluded that, in view of its high sensitivity and specificity rates, the presented clinical hemodynamic classification in isolated VSD was adequate to justify its practical use.

Effect of Defibrotide Administration on Restenosis After Successful PTCA

V. Aytekin, M. Öztürk, S. Öztürk, O. Ulutin, C. Demiroğlu

We have investigated the effect of defibrotide (D) administration on restenosis after successful PTCA. 66 PTCA patients were randomized to D [D (+)] or non-D [D (-)] groups. PTCA was successful in 27 of 33 patients in d (+) group in which defibrotide was administered before and after PTCA, and in 30 of 33 in D (-) group who were given only the routine therapeutic scheme. So we considered the results of 57 patients in whom the PTCA procedure were successful. Coronary angiographic controls were made after the onset of the symptoms in symptomatic patients, or after 6th month of PTCA in asymptomatic patients.

There were no significant differences between D (-) and D (+) groups according to age, sex, hypertension, diabetes, hypercholesterolemia, smoking, family history of coronary artery disease, the localization of the lesions in left anterior descending artery, circumflex artery and right coronary artery, the mean stenosis degree of the lesions before PTCA. There were also no significant difference between the mean stenosis degree of the lesions after PTCA in two groups.

Angiographic restenosis were found in 9 patients (30 %) and 9 lesions (24.3 %) in D (-) group, and in 15 patients (57.6 %) and 15 lesions (45.4 %) in D (+) group (p : ns). In conclusion defibrotide administration does not effect the incidence of restenosis significantly after successful PTCA.

Protocol for the Coronary Angioplasty versus Bypass Revascularisation Investigation

T. Okay

Considerable controversy exists about extension of percutaneous transluminal angioplasty (PTCA) into the arena of therapy for multivessel coronary artery disease. Although coronary artery bypass surgery has been thoroughly compared with medical therapy in randomized trials, studies of PTCA to date have been observational in nature. In this report

we present the design of the coronary angioplasty versus bypass revascularisation investigation (CABRI) trial. Koşuyolu Heart and Research Center was accepted as the 26th center for this trial. CABRI is a multicenter randomised, open comparison of patients assigned to either PTCA or bypass surgery, without striving for complete revascularisation. The aim is to compare the two intervention mode as regards the overall clinical outcome and cost-effectiveness. 2000 patients will be enrolled into the study in 26 centres.

Review

The role of Exercise in the Primary and Secondary Prevention of Coronary Atherosclerotic Heart Disease

H. Yüksel

Some risk factors for coronary heart disease may be altered by paying a great cost as in the case of pharmacologic treatment of hypertension and hyperlipidemia. Physical inactivity is the most prevalent risk factor, but can be eliminated with sufficient exercise. Exercise has a favorable effect directly or indirectly on hyperlipidemia, hypertension, cigarette smoking and diabetes mellitus. There are also beneficial effects of exercise on coagulation factors, obesity and psychologic profiles.

In this article, the exercise concept in the primary and secondary prevention of coronary atherosclerosis, the effects of exercise on other coronary risk factors, and significant studies made on exercise in primary and secondary prevention of coronary atherosclerosis are reviewed.

There were no significant differences between D (-) and D (+) groups according to age, sex, hypertension, diabetes, hypercholesterolemia, smoking, family history of coronary artery disease, the localization of the lesions in left anterior descending artery, circumflex artery and right coronary artery, the mean stenosis degree of the lesions before PTCA. There were also no significant differences between the mean stenosis degree of the lesions after PTCA in two groups.

Angiographic restenosis were found in 9 patients (30%) and 9 lesions (24.3%) in D (-) group, and in 12 patients (27.6%) and 12 lesions (43.4%) in D (+) group (p=ns). In conclusion, defibrillation administration does not effect the incidence of restenosis significantly after successful PTCA.

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The correlation between CTR and the echocardiographic size of the left ventricle was also very high. CTR showed a sensitivity of 66% and a specificity of 81% with the size of the left ventricle. Considered multivessel CTR correlated best with both size of the defect and that at the left ventricle. CTR showed a sensitivity of 82% (p=0.72, n=67). CTR showed a sensitivity of 82% for patients with large defects as well as large left ventricle and a specificity of 93% in patients with small defects and normal left ventricle. The quantity of echocardiographic left-to-right shunt detected a sensitivity of 76% and a specificity of 73% with the clinical estimate of it. The pattern of right ventricular hypertrophy in the ECG showed a sensitivity of 100% and a specificity of 84% in the setting of echocardiographically estimated presence of pulmonary hypertension. It was concluded that, in view of its high sensitivity and specificity rates, the presented clinical hemodynamic classification in isolated VSD was adequate to justify its practical use.