

Summaries of Articles

Clinical Investigations

Extent of Coronary Artery Involvement, Wall Motion Abnormalities and Left Ventricular Diastolic Function

C. Kocakavak, F. Gürkaynak, H. Şaşmaz, Y. Sözütek, S. Göksel

The present study was performed on 170 patients with coronary artery disease (CAD) and 20 normal control subjects. The influences of the extent of artery involvement and wall motion abnormalities (WMA) on left ventricular diastolic function (LVDF) at rest were assessed by pulsed Doppler echocardiography. Following parameters were evaluated: age, early "peak" filling rate (E)/late "peak" filling rate (A) ratio, deceleration half time and deceleration rate. When the normal control group and CAD patient group were compared for the Doppler parameters, significant impairment in LVDF was seen in patients with 1, 2 and 3-vessel disease and no WMA ($p<0.001$). Regarding the Doppler abnormalities, no significant differences were found among patients with 1, 2 and 3-vessel disease and no WMA. Furthermore, no differences were found in Doppler measurements of the CAD patient group between those with and those without WMA ($p>0.05$). In conclusion, our study suggests that the extent of involvement of coronary arteries and the presence of WMA do not significantly influence the impaired global LVDF in patients with CAD.

Long-term Follow-up of Carpentier-Edwards Porcine Bioprosthesis

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From 1976 to 1986, sixty-nine Carpentier-Edwards standard porcine bioprostheses (60 mitral, 9 tricuspid) were implanted in 69 patients. Twenty of them were male and 49 were female. Mean age at implantation was 30,1 years. Follow-up and investigation were carried out in 53 patients for 1-10 postoperative years to evaluate the end results of this type of valve replacement that included various aspects of hemodynamic values, development of valve dysfunction, rate of thromboembolic events, valve suture deficiency,

infectious endocarditis, hemolysis and mortality rate. Postoperatively, the functional capacity of all patients was improved: peripheral emboli developed in 3 cases (% 5.6), valve dysfunction was noted in 23 (% 47) and infective valve endocarditis in 3 patients (% 5.6), but signs of valve suture deficiency or hemolysis was not observed. Total mortality rate was 7,5 percent corresponding to 3 operative deaths and one death during the long-term follow-up period.

Electrocardiographic findings in Hemorrhagic Stroke: II. Intracerebral Hematoma

E. Kumral, M. İşler, E. Terzioğlu, H. Yılmaz, K. Kumral

We evaluated the ECGs of 82 patients which had intracerebral hemorrhage in the acute phase. A variety of ECG changes were seen in 94 per cent of patients. We observed commonly QT prolongation, T-wave inversion and ST segment changes. QT prolongation, ST changes and prominent U waves were seen more frequently in brainstem bleedings. ECG abnormalities seen in intracerebral hemorrhage are considered to result from disturbances of the cardiovascular regulation center located in the hypothalamus and brainstem.

Plasma β -Thromboglobulin and Platelet Factor 4 in Patients with Coronary and Rheumatic Heart Diseases

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Plasma levels of beta-thromboglobulin (BTG), platelet factor 4 (PF4) and counts were determined in 21 coronary heart patients, 22 rheumatic heart patients, 21 prosthetic valve patients and 15 healthy subjects. The levels of BTG and PF4 in coronary patients were higher than in the other groups ($p<0.05$), while those of all patients were higher than the levels in normal healthy controls ($p<0.05$). Lower BTG and PF4 levels in prosthetic valve patients than in rheumatic heart patients (without prosthesis) could be related to the use of anti-platelet drugs. Platelet counts were not significantly different between any group

($p>0.05$). This study suggested that the determination of plasma BTG and PF4 may be useful in assessing the therapeutic efficacy of anti-platelet-aggregation treatment.

Diltiazem Therapy in Stable Angina Pectoris: A Placebo-Controlled Study

G. Kabakçı, A. Oto, E. Oram, A. Karamehmetoğlu, A. Oram, Ş. Uğurlu

The antianginal and metabolic effects of diltiazem were investigated in 18 patients (5 female, 13 male, mean age 53.0 ± 1.7) with stable angina pectoris during 2 weeks of placebo and 4 weeks of diltiazem (180-360 mg/day) trial periods. The patients performed a symptom-limited supine bicycle exercise test at the beginning of the study and at the end of the placebo and diltiazem periods. The frequency of angina and consumption of sublingual nitrates were decreased significantly by diltiazem ($p<0.001$, diltiazem vs placebo). Mean exercise time, time to onset of angina pectoris and 1 mm ST segment depression of placebo period were increased at the end of the diltiazem therapy (all $p<0.001$). Heart rate and myocardial oxygen demand as indicated by rate-pressure product were decreased by diltiazem at rest (both $p<0.001$) and at a submaximal workload ($p<0.01$ and $p<0.02$, respectively), but remained unchanged at the level of peak exercise ($p>0.05$ for both) when compared to placebo. ST segment depression at submaximal and peak exercise and ST segment recovery time after completion of exertion were reduced significantly by diltiazem treatment ($p<0.001$). In addition no significant changes in plasma total cholesterol, triglyceride, ALT, AST, uric acid, glucose and creatinine levels were observed after 4 weeks of diltiazem treatment. We could not detect any serious side effects. These findings confirm that diltiazem is an effective antianginal agent lacking undesirable side effects and can be used safely in the management of patients with chronic stable angina pectoris who have no congestive heart failure or serious conduction defects.

Gallopamil Treatment in Chronic Stable Angina Pectoris: A Double Blind, Placebo-Controlled Study

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Antianginal effect of gallopamil was investigated as a double blind, placebo-controlled study in 14 patients with chronic stable angina pectoris (10 men, 4 women, mean age 53.8 ± 9.1). Ergometric exercise stress test was performed in all patients before and after two-week drug or placebo periods. Number of anginal attacks per week and nitrate consumption declined after gallopamil when compared to placebo (81% and 79%; $p<0.0001$ and $p<0.01$). Resting heart rate, systolic and diastolic blood pressures statistically significantly diminished after gallopamil therapy ($p<0.005$ and $p<0.01$). While resting rate-pressure product values were less than that of placebo period in gallopamil period, exercise tolerance increased 36% after gallopamil treatment compared with placebo. Also the amount of ST segment depression significantly decreased in patients receiving gallopamil ($p<0.001$). It was concluded that, gallopamil is an effective agent in the treatment of chronic stable angina pectoris.

Coronary Atherosclerosis and Angina Pectoris in Aortic Valvular Heart Disease

Z. Bursalı, R. Enar, N. Yazicioğlu, C. Demiroğlu

Seventy-three patients with aortic valvular disease (AVD) who had all undergone cardiac catheterization and coronary angiography were studied in regard to the interrelationship between angina pectoris (AP) and coronary artery disease (CAD). The incidence of AP was 62 % in aortic stenosis (AS), 44 % in aortic regurgitation (AR), 51 % in combined AS+AR while that of CAD was 31 %, 11 % and 13 %, respectively. No significant differences existed between the groups. While AP was noted only in 44 % of patients without CAD, it existed in 11 of 12 patients with CAD ($p<0.005$). Patients with CAD were significantly (a decade) older than the others. AP was significantly higher in AVD patients with left ventricular hypertrophy (LVH) or aortic valve calcification (AVC) than those not exhibiting these complications. This observation was valid also in patients with AS or combined AS+AR with AVC as compared to those without AVC and in AR with LVH compared to those without LVH.

Our findings confirmed that in addition to the hemodynamic effects of the valvular disease, CAD is an important etiologic factor in AP in these patients.

Amrinone in the Treatment of Heart Failure: Comparison with Dopamine

Z. Aykaç, E. Kopman, Y. Seyithanoğlu, A. Çağıl

The hemodynamic effects of a new inotropic agent amrinone (phosphodiesterase III. inhibitor), is compared with the hemodynamic effects of dopamine. Eight patients with cardiac failure (NYHA class 3-4) were studied with oximetric Swan-Ganz catheters. Significant rises in mean arterial pressure (MAP), heart rate (HR), pulmonary artery pressure (PAP), pulmonary capillary wedge pressure (PCWP), pulmonary vascular resistance (PVR) and cardiac index (CI) were obtained with dopamine. However, amrinone caused significant falls in PAP, PCWP and systemic vascular resistance (SVR), while it led to no significant differences in HR, MAP and PVR.

Factors Affecting the Value of Planar Exercise Thallium Scintigraphy in the Diagnosis of Coronary Artery Disease

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Factors influencing the outcome of planar exercise thallium scintigraphy (ExTS) in the diagnosis and management of coronary artery disease were assessed in this study. The scans of 198 patients who had undergone coronary angiograms were reevaluated without a quantitative analysis. The test was performed in 64 patients in 1986, in 88 patients in 1987 and in 46 patients in 1988. The sensitivities were found to be 92 %, 86 % and 95 % with corresponding specificities of 62 %, 84 % and 100 % with respect to the year the test was performed. The overall sensitivity was 90 % with a specificity of 80 %. After reevaluation sensitivity increased to 94 % while the specificity did not change.

The reason for false positivity in 5 of 9 patients was found to be errors in the evaluation of normal variants. In the remaining 4 patients, 3 with a proven previous myocardial infarction and 1 with cardiomyopathy, coronary arteries were normal, but the coronary perfusion was abnormal. In the 15 patients with a false negative diagnosis, the reasons were interpretation errors in 6, low image quality in 3, distal vessel disease in 2, and sufficient collateral flow in 1 patients. Perfusion defects in more than one region

could be detected in 42 % of patients with two or three-vessel disease. In all patients defects were detected in 78 % of the patients with left anterior descending disease, 55 % in right coronary artery disease, and 39 % in circumflex disease.

Thus we concluded that results obtained with two different methods, one displaying the 'anatomy', the other reflecting the 'function' are not always consistent with each other and the main factor affecting the sensitivity of ExTS in detecting individual lesions is the amount of myocardium jeopardized. Experience in interpretation is of paramount importance as to the diagnostic value of exercise thallium scintigraphy.

Non-invasive Assessment of Effects of Isosorbide Dinitrate on Left Ventricular Diastolic Functions and Left Atrial Systolic Time Intervals in Hypertensive Patients

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Left ventricular diastolic functions and left atrial systolic time intervals (LASTI) were evaluated by Doppler echocardiography in 50 hypertensive (HG) and 25 normotensive subjects (CG) before and 20 minutes after isosorbide dinitrate (ISDN) was given. Mean and peak flow velocities (VM and VP) of early and late diastolic fillings, ratio of atrial peak flow velocity to early diastolic peak flow velocity (A/E), ratio of atrial flow volume to transmitral flow volume (AFV/TFV), and acceleration and deceleration averages (E-AA and E-DA) were measured. In addition, atrial ejection time (AET), atrial preejection time (APET) and corrected atrial preejection time (APETc) were measured as LASTI. While ISDN reduced left ventricle's and left atrium's dimensions, it also reduced left ventricular filling during early and late diastolic periods. This effect of ISDN was different in HG and CG. Although A/E and AFV/TFV ratios were fixed in HG before and after ISDN was given, they were increased significantly in CG ($p < 0.05$).

The decrease in preload was different in early and late diastolic periods when ISDN was given. The changes in preload should be noted carefully, when diastolic functions were measured by Doppler echocardiography. Because there were no significant changes oc-

curing in APETc and APET/AET values after ISDN was given, these parameters may be used reliably in the evaluation of left atrial functions.

Vein Patch Reconstruction and Endarterectomy Combined with IMA Grafting in Left Anterior Descending Coronary Artery Lesions

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Between February 1985 and March 1990 IMA anastomosis was performed on saphenous vein patch reconstruction in 42 patients who had long segmental narrowings and occlusions in the LAD artery. In 27 of them open and blind endarterectomy were added to these procedures. The morbidity in terms of requirement for inotropic agents, IABP, development of perioperative myocardial infarction (14 %) and the mortality (9.5 %, 4 patients) were found significantly higher than routine coronary revascularization operations. These cases carry high risks due to poor left ventricular function, reoperation, unstable angina multivessel disease. Although the mortality and morbidity are high, such combined techniques can be used to obtain complete revascularization under certain warranted conditions. Especially in proximal LAD, blind endarterectomy should be avoided as it is possible to obtain sufficient luminal width and use IMA by saphenous vein patch reconstruction without endarterectomy.

Electrocardiographic Changes in the Early and Late Periods After Percutaneous Balloon Pulmonary Valvuloplasty

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The electrocardiographic changes observed both during and after percutaneous balloon pulmonary valvuloplasty procedure that had been performed in the 32 patients at the Cardiology Clinic of the Yüksek İhtisas Hospital of Turkey, were evaluated. Sinus bradycardia was seen in 2 cases (6 %), ventricular and supraventricular premature contractions in 13 (40 %), transient complete right bundle branch block in 4 (12 %) and junctional tachycardia in 1 patient (3

%) during the procedure. Second degree AV block, and then an accelerated AV junctional rhythm developed in 1 patient (3 %). Moreover, it was observed that the initial QTc interval, 404 ± 39 msec, had prolonged up to its peak value, 449 ± 20 msec, within 24 hours after the procedure ($p < 0.01$) and returned gradually to the initial values, 410 ± 20 msec, one month later ($p > 0.05$).

All patients had a mean 118 ± 30 degree of QRS axis before the procedure and right ventricular hypertrophy was noted in 24 cases (75 %). In 25 cases with a follow-up the mean QRS axis decreased from 121 ± 29 to 105 ± 30 degree after a period of 6-24 months ($p < 0.05$). 19 of those patients showed the pattern of ventricular hypertrophy disappeared in 4, regressed in 10 and was unchanged in 5 patients.

Though no life threatening or persistent arrhythmia was noted during or after the procedure, we noticed the manifestations of minor traumatic effects of the balloon catheters on the conduction system during inflation.

Case Report

Coronary Artery Fistula: Report of Two Cases

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B. Yiğiter, R. Tosun

Two cases of coronary artery fistula which were discovered in middle-aged men during diagnostic coronary angiography are presented. In the first patient, a branch of the left anterior descending artery drained into the origin of the pulmonary artery after having exhibited aneurysmal dilatation.

The artery was surgically ligated. In the second patient, the left anterior descending artery itself drained into the pulmonary artery. In addition to ligating the fistula, a bypass graft was performed for the severely narrowed middle portion of the left circumflex artery.

Isolated Coronary Ostial Stenosis

C. Kocakavak, E. Kütük, H. Şaşmaz

Isolated coronary ostial stenosis is a rare lesion and occurs predominantly in premenopausal females or in males who had been taking estrogens.

This case report describes a male exhibiting an isolated left main coronary artery ostial stenosis and Leriche syndrome. This case was unique among 9702 cases in whom coronary angiograms had been performed between 1974 and December 1989 at the Yüksek İhtisas Hospital in Ankara, Turkey. This case illustrates that isolated ostial stenosis of the left main coronary artery can occur in a male not having taken estrogens.

Total Anomalous Pulmonary Venous Connection to the Portal Venous System

S. Karademir, A. Bilgiç, S. Özkutlu, F. Öztunç

In this report we described an infant with an infradiaphragmatic type of total anomalous pulmonary venous drainage. The diagnosis was confirmed with echocardiography and cardiac catheterisation.

Reviews

Central Nervous System Disorders and Cardiovascular Functions

M. İşler, E. Kumral

Central nervous system (CNS) disorders cause complications varying from blood pressure changes to acute pulmonary edema by influencing neurohumoral mechanisms. In clinical practice, it is especially important that electrocardiographic changes which is mimicking myocardial ischemia and infarction, and life threatening arrhythmias can be seen. For that reason, a patient with disorders of CNS needs to be followed in a specialised unit where continuous ECG monitoring and immediate interventions are possible.

Hypertension in Elderly Patients

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According to major studies, hypertension is found in over half the population aged 65 years or over. In this age group, systolic blood pressure is at least as important as diastolic blood pressure as a predictor of cardiovascular mortality. Although the basic etiology of systolic hypertension is not clear, a number of mechanisms appear to contribute to this form of hypertension (changes in compliance of large arteries, decreased baroreceptor sensitivity, increased responsiveness to sympathetic nervous system stimuli, altered renal, sodium metabolism and renin-angiotensin-aldosterone relations). In addition to the epidemiology and pathophysiology, the use of various antihypertensive agents in elderly patients is reviewed.