Summaries of Articles

Clinical Investigations

Assessment of Clinical and Angiographic Predictors of Restenosis after PTCA

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The aim of the present study was to investigate clinical and angiographic predictors of restenosis after percutaneous transluminal coronary angioplasty (PTCA). The material of the study consisted of 79 patients (64 male) having a mean age 57±7. These patients had multilesion-multivessel PTCA between 1984-1989 and all have been rechecked angiographically. Groups developing restenosis or not were compared in regard to different clinical and angiographic criteria. Clinical criteria (age, sex, diabetes mellitus, hypertension, gout. cigarette smoking, hyperlipidemia, familial history, angina pectoris functional class and post-PTCA drug therapy) did not show any significant difference between the two groups. A higher degree of residual stenosis ($P<0.01$), left anterior descending localization ($P<0.005$) and left ventricular functional disturbances ($P<0.05$) were significantly different parameters in the group with restenosis. It is therefore suggested that, in the presence of these angiographic features, frequent angiographic controls after PTCA will be necessary.

Myocardial Infarction in Patients Aged 70 years or Older

G. Özbay, A. Tuğrul, M. Yüce , D. Mengü, F. Özçelik

The clinical data of 102 patients with myocardical infarction whose ages were 70 years or older (≥70 years) were compared retrospectively with those of 446 younger patients (<70 years). 35 % of patients in the older and 19 % of those in the younger group were females. With advancing age the difference of mean ages between males and females diminished.

Anterior location in the group of <70 years ($P<0.01$) and subendocardial location in the group of ≥70 years ($P<0.01$) were more frequent. Transmural myocardial infarctions were found more frequently in the group of <70 years. Although the incidence of hypertension in the older group was more frequent, the incidence of diabetes was not different between the two groups.

Heart failure was more frequent and more severe in the older group. Mean QRS scores of the older and younger groups and between patients with or without heart failure in the older group were not different. Serious rhythm and conduction disturbances were more frequent in the group of ≥70 years. Hospital mortality rates were 23.1 % and 12.5 % in the older and younger groups, respectively. Death rate due to heart failure was 13.7 % in the older and 7.8 % in the younger group.

In conclusion, more frequent rhythm disturbances and heart failure were seen in the elderly. Although the occurrence of heart failure was not closely associated with infarct area in the older, it is thought that such association was closer in the younger. Consequently, a higher early mortality is observed in older people.

Effect of Captopril on Left Ventricular Diastolic Function in Patients with Coronary Artery Disease

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

This placebo-controlled study was performed on 20 normal control subjects and 20 patients with coronary artery disease (CAD), and the effect of captopril, an angiotensin-converting inhibitor, on left ventricular diastolic function in patients with CAD was assessed by using pulsed Doppler echocardiography.

In the patients, all cardioactive medications were stopped for 3 days, except for sublingual isosorbide dinitrate (if they expienced angina). Then, captopril or placebo was given to patients orally at a dose of 12.5 mg twice daily for a week and in the following week, patients who had received placebo were given captopril. At the end of each period, patients were evaluated by physical examination and pulsed Doppler echocardiography.

In contrast to the control group early, peak filling rate (E), late filling rate (A), E/A ratio acceleration

half time (AHT), deceleration half time (DHT) and deceleration rate (DR) were all impaired in the patient group. When compared to placebo in the patient group, captopril caused a significant decrease in systolic and diastolic blood pressures and the double product, while it did not change heart rate significantly. Captopril also improved significantly in the patient group the LV parameters E, A, E/A ratio, DHT and DR.

This study suggested that captopril significantly improved LV diastolic function in patients with CAD and that this improvement was due to a decrease in myocardial oxygen requirement and presumably to an increase in myocardial blod flow.

Role of Gender in Acute Myocardial Infarction

G. Özbay, A. Tuğrul, M. Yüce, Y. Bozkurt

The clinical data of 122 female and 426 male patients (ratio:1:3.5) admitted with acute myocardial infarction to a coronary care unit were examined retrospectively for differeneces of mortality and morbidity between the two sexes. The mean age of females were 7 years higher than those of males (P<0.001). Subendocardial myocardial infarction were more frequent while inferior and anterior myocardial infarction were less frequent in women.

Both diabetes (26 % vs 14 %) and hypertension (38 % vs 16 %) in association with acute myocardial infarction more seen more frequent in women as compared to men. Heart failure as a result of acute infarction was more common in females. The mean QRS score of males was found higher than in females (P<0.01). Although no significant difference existed between the mean of QRS scores in the two groups, the mean of QRS score of male patients with heart failure was noted to be higher than those without heart failure.

A variety of serious rhythm disturbances and conduction defects in women were encountered more frequently than in men. Total hospital mortality rates in females and males were 20.5 % and 12.9 %, respectively. Mortality rates due to heart failure in women and men were 18.0 % and 10.3 %, respectively. In conslusion, the mortality and morbidity in acute myocardial infarction in women, notably due to heart failure and or rhythm and conduction disturbances is higher than in men.

Right Ventricular Pressure Assessed by Echocardiography in Patients with Ventricular Septal Defect

S. Göksel, H. Şaşmaz, C. Kocakavak

In 14 cases, whose mean age was 12.2 (5-27), right ventricular pressure estimated by CW Doppler echocardiography varied between 20-89 mmHg (m=45.5 mmHg), whereas hemodynamically measured right ventricular pressure in the same patients varied between 16-100 mmHg (m=44.7 mmHg). There was a positive correlation between the two data (r=0.92). Patients with pulmonary stenosis (infundibular or valvular) were not included in this study.

It is concluded that, in patients with isolated ventricular septal defect right ventricular pressure can be estimated noninvasively by color-Doppler echocardiography.

Aortic Valve Replacement in Children

H. Raffa

See page 97 for full English text.

Cardiac Performance After Diltiazem in Digitalized Patients with Atrial Fibrillation

M. Karakuzu, H. Akbaylar, S. Güneri, A. M. Özer

Heart rate, blood pressure and exercise duration were evaluated by treadmill test in 15 patients having chronic atrial fibrillation and taking 0.25 mg digoxin per day, before and after diltiazem treatment at a daily dose of 180 mg for 10 days. Diltiazem significantly reduced heart rate during rest, submaximal and maximal exercise periods and 3 minutes after exercise (p<0.01). It did not affect blood pressure. Total exercise duration increased about 30% after diltiazem treatment.

It was concluded that the addition of diltiazem (180 mg per day) to patients who have chronic atrial fibrillation and are taking digoxin, affected their cardiac performance positively.

Double-Orifice Mitral Valve

K. Süzer, T. Paker, A. Sarıoğlu, A. Köner, T. Sarıoğlu, R. Olga, Y. Yurdakul, A. Aytaç

Double orifice mitral valve (DOMV), a rare congenital cardiac anomaly, was seen in six patients who have undergone open heart surgery at the Department of Pediatric Thoracic and Cardiovascular Surgery, Hacettepe University Hospital and at the Department of Cardiovascular Surgery, Cardiology Institute, University of Istanbul, from 1976 to March, 1989.

DOMV was associated with atrioventricular canal defect in all but one patients. The patient with isolated DOMV had severe mitral insufficiency necessitating mitral valve replacement. In three patients who had a cleft in the mitral valve, satisfactory mitral competence was achieved by primary repair of the cleft. In the remaining two cases, the mitral valve was left intact since there was no mitral valve dysfunction.

Relationship Between Precatheterization QT Interval and Ventricular Fibrillation During Coronary Angiography

M. Metin, A. Çengel, E. Danyal, Ö. Dörtlemez, H. Dörtlemez

We examined retrospectively angiograms, precatheterization electrograms and records of 10 consecutive patients who had ventricular fibrillation during coronary angiography, and compared these patients to controls matched for age, sex and left ventricular function. Iopromid (0.769 g) was used as the angiographic contrast agent in all instancess. Catheterization findings and the prevalence of prior myocardial infarction were similar in both groups. However, precatheterization corrected QT (QTc) intervals in the ventricular fibrillation group (0.49±0.02s) were significantly longer than in the control group (0.42±0.02s).

Prolongation of precatheterization QTc interval in the ventricular fibrillation group was significant ($p<0.01$). It was concluded that ventricular fibrillation, an important and frequent complication of coronary angiography, has a relationship to prolongation of the precatheterization QTc interval.

Hypertrophic Obstructive Cardiomyopathy and its Surgical Treatment

Y. Zorlutuna, C. L. Birincioğlu, O. Taşdemir, C. Yakut, A. Eralp, K. Bayazıt

Between 1968 and 1989, 19 patients with hypertrophic obstructive cardiomyopathy have been operated at Turkey's Yüksek İhtisas Hospital. The patients (7 female and 12 male) were between 6 and 55 years of age at the time of operation (mean 26 years). Peak systolic pressure gradients from the left ventricle to aorta ranged from 50 mmHg to 212 mmHg. Surgical treatment was performed in 11 patients with "selective septal" type, in 2 patients with diffuse type, in 6 patient with mixed type. In 7 patients myectomy, in 3 patients myectomy and resection of membrane, in 4 patients myectomy and mitral annuloplasty, in 1 patient myectomy and mitral valve replacement, in 3 patients myectomy and aortic valvotomy, in 1 patient apico-aortic valve conduit were performed. In the early period 2 patients died. In a mean follow-up period of 24 months no further fatality was noted.

R-wave Amplitude Changes During Exercise and Diagnosis of Coronary Artery Disease

M. Özcan, V. Sansoy, A. Berkyürek, M. Platin, İ. Eren, D. Güzelsoy, C. Demiroğlu

To investigate the diagnostic value of exercise-related R wave amplitude changes, the responses of 88 asymptomatic healthy subjects and 40 patients with chest pain and no significant coronary artery diease (CAD) were compared with those of 143 patients with CAD 63 of whom had a previous myocardial infarction. All underwent maximal, multistaged treadmill exercise testing. Of 128 normal subjects 94 (73%) had a decrease in R wave amplitude, 20 (16%) had an increase in amplitude, and 14 (11 %) had no change. Among 143 patients with significant CAD, R wave amplitude increased in 64 (45 %), decreased in 47 (33%) and did not change in 32 (22 %). When an increase or no change in R wave was taken as evidence of an abnormal response, the sensitivity was 67 % and specificity 68 %. The sensitivity and specificity of ST segment criterion was 68% and 80 %, respectively. When both criteria were combined, the sensitivity increased to 89.5% while the specificity

decreased to 58 %. With respect to abnormal response in R wave amplitude, the difference between patient groups with one-two-or three-vessel disease was not significant. R wave amplitude increased or did not change in 77% of patients with left ventricular hypokinesia, while 59% of patients with normal function had an increase or no change in R wave ($p<0.05$).

It is concluded that the sensitivity and diagnotic accuracy of R wave criterion is as much as that of ST segment's but its specificity is lower. The combination of both criteria may increase the sensitivity, decrease the specificity with respect to ST segment criterion without a significant change in diagnostic accuracy. Thus R wave response to exercise is not considered contributory to the ST segment criterion in the diagnosis of CAD.

Mitral Valve Replacement After Closed Mitral Commissurotomy

S. Dağsalı, M. Demirtaş, A. Kanca, İ. Gökyay, C. Alhan, E. Demiray

Between November 1979 and July 1989 58 patients previously operated with closed mitral commissurotomy (CMC) at the Center of Cardiovascular and Thoracic Surgery in Istanbul underwent open cardiac reoperations for mitral and/or other valvular lesions. Major cause of reoperation was mitral restenosis (19 cases). There were 37 female and 21 male patients whose ages ranged from 18 to 52 years (mean 38). Preoperatively, 72% were in NYHA functional class III and IV. There were 7 early (12%) and 4 late deaths (7%). Postoperative functional class showed 72% of these patients to be in class I and II. The patients were reoperated 5-20 years after the first operation. Associated valvular lesions, infections and pulmonary hypertension are the leading factors which determine the functional state, reoperation period and survival in patients with previous CMC.

Application of Percutaneous Transluminal Coronary Angioplasty in Unstable Angina Pectoris

M. Meriç, Y. Nişancı, K. Adalet, T. Gören, S. Umman, D. Atılgan, N. Koylan, E. Onursal, C. Barlas, F. Korkut, Ö. Güven, Ö. Özsaruhan, F. Erzengin, R. Özcan, G. Ertem, K. Büyüköztürk, R. Berkmen

Percutaneous transluminal coronary angioplasty (PTCA) was applied to 38 coronary lesions in 32 patients (6 females, 26 males, average age 50±9 years) with unstable angina pectoris. The procedure of PTCA was based on the method of Grüntzig. We performed single angioplasty in 26 patients and complex angioplasty in 6 patients. The overall primary success was 84.2 percent. The ratios of major and minor complications were found to be 6.2 and 25 percent. Restenosis was observed in 10 percent of patients. In 20 patients with stabilized unstable angina pectoris the primary success rate was 78.2 %, the mortality and minor complication rate of PTCA were 10 % and 10 %. Restenosis occurred in none of the patients of this group. In 12 patients with non-stabilized unstable angina pectoris the primary success rate was higher (93.3 %), major and minor complication rate of PTCA were 0 % and 50 %. Restenosis ratio was found to be 25 percent.

We concluded that PTCA in patients with unstable angina pectoris can be applied with an acceptable risk and high success rate.

Relation of Ventricular Arrhythmias to the Number of Involved Vesssels and Ventricular Function in Coronary Artery Disease

M. Öztürk, İ. Fıratlı, V. Aytekin, F. Değirmencioğlu C. Türkoğlu, N. Ergil, C. Demiroğlu

In order to determine the frequency and the class of ventricular arrhythmias (VA) in coronary artery disease (CAD) and to investigate the relationship between VA and the extent of CAD and the class of ventricular dysfunction, 24-hour ambulatory monitoring was recorded in a total of 80 cases of CAD (77 males, 3 females) who had undergone coronary angiography.

Various classes of VA were found in 71 (89 %) out of 80 patients. The distribution of the incidence of VA in patients with one-, two-, and three-vessel disease and left main coronary artery disease were not significantly different (82, 91, 93 percent, respectively). The incidence of VA was not significantly affected by the level of left ventricular end-diastolic pressure (LVEDP) nor was there a significant rela-

tionship between the class of VA and the number of involved vessels and LVEDP values. Expcept for VA class IV, the incidence of VA was not significantly different in patients who had myocardial infarction (MI) (94 %) from that without MI (81 %). All 10 patients with a ventricular aneurysm exhibited VA while VA were noted in 87 % of patients without an aneurysm (not significant).

Case Reports

Subacute Rupture of the Free Left Ventricular Wall Following Acute Myocardial Infarction: Successful Surgery in a Case

A. Çengel, M. Metin, M. Alkan, A. Yener, Ö. Dörtlemez, H. Dörtlemez

Free left ventricular wall rupture following acute myocardial infarction usually results in cardiac tamponade and sudden death. Occasionally, the bleeding to the pericardial sac is arrested by the surrounding pericardial tissue causing a pseudoaneurysm formation. The case herein reported presented with a refractory pericardial effusion, one month after an anterior myocardial infarction. While echocardiography failed to reveal a pseudoaneurysm or to localize a rupture, cineventriculography disclosed the diagnosis of a minimal rupture from the left ventricular free wall. The patient was successfully treated by surgery.

Orthotopic Heart Transplant in Turkey With 5 Months' Follow-Up

Ö. Bayezid, M. Balkanay, M. Carin, İ. Öztek, A. Öcal, Ö. Işık, H. Sezer, S. Ener, Ç. Yakut, T. Koçak,S. Sezer, N. Çağlar, M. Özdemir, C. Yakut

A successful heart transplantation was performed at Koşuyolu Heart and Research Hospital, İstanbul, on September 7, 1989. The patient was a 58 year-old male. He had end-stage heart failure due to coronary artery disease with global ventricular dysfunction. Cardiac catheterization findings were consistent with the presence of ischemic cardiomyopathy and very poor ventricular function.

The patient underwent orthotopic cardiac transplantation. Immunosuppression was based on cyclosporine, azathioprine and low dose steroid with an initial 3-day course of antithymocyte globulin. Three rejection episodes occurred within the first 6 weeks of transplantation and all were moderate. These episodes were treated with a course of intravenous methylprednisolone and ATG. The early function of the transplanted heart at 5 months has been satisfactory.

Complete Occlusion of the Left Main Coronary Artery: Report of two cases

İ. Fıratlı, M. Öztürk, C. Bakay, V. Aytekin, Z. Bursalı, C. Demiroğlu

We described the clinical, hemodynamic and angiographic findings of two patients who had complete occlusion of the left main coronary artery which occurs roughly in one out of 1000 patients undergoing coronary arteriography.

Left main coronary artery was completely occluded after a short proximal segment in one of the patients (A.Y.). Right coronary artery was dominant, and there was a significant narrowing in the posterolateral branch. There were extensive collaterals from right to left. Distal branches of the left coronary system were visualized via the collaterals from right to left in both patients. One of the patients (A.Y.) had poor left ventricular function and ventricular tachycardia episodes were seen soon after the angiography, which were resistant to various antiarrhythmic agents. Both of the patients underwent coronary bypass surgery. One of them (A.Y.) had exercise induced angina pectoris in the 8th month of the postoperative follow-up period.