

Summaries of Articles

Investigations

Effects of Early Thrombolytic Therapy on Left Ventricular Remodeling in Acute Myocardial Infarction

K. Gürkan, A. Narin, G. Yüksel, B. Dağdeviren, F. Duru, F.T. Ulufer, S. Ünal

Following thrombolysis in acute myocardial infarction (AMI), the patency of infarct-related artery has been claimed to have additional effects on ventricular volumes more than salvaging the jeopardized myocardium. To scrutinize this "open artery hypothesis", we evaluated 42 initial anterior AMI cases with left anterior descending coronary artery (LAD) involvement who have been given streptokinase early. Angiographically the patients have been divided into two groups according to the patency of infarct-related artery.

Left ventricular volumes and ejection fractions (EF) have been calculated from the projections of left ventriculograms in RAO-30 degree position, using single plane area-length ellipsoid method. Infarct sizes (IS) have been derived from the number of ventricular radii of which the fractional shortenings were 2 standard deviations lower than the mean values of normal individuals.

While IS values, end-systolic and end-diastolic volumes were significantly reduced in those with attained reperfusion of LAD ($p<0.01$, $p<0.001$, $p<0.001$, respectively), EF and pressures did not differ notably ($p>0.05$, $p>0.2$, $p>0.3$).

It may be considered that early reperfusion reduces infarct expansion since there is a significant linear correlation between left ventricular volumes and IS. However, when IS is more than 5 radii, patients with patent arteries have smaller end-systolic volume indices ($p<0.02$), although IS values are similar ($p>0.1$). Hence, these findings suggest that early reperfusion of infarct-related artery, beyond salvaging the myocardium, reduces ventricular cavities which may reflect the prognosis better than EF.

The Effects of Nitrendipine on Glucose Metabolism in Patients with Hypertension

S. M. Karcier, M. Caner, G. Candan, G. Güldamla

This study was designed to investigate the effects of nitrendipine (NT) on glucose metabolism in patients with uncomplicated mild to moderate essential hypertension, following a drug-free period of two weeks and placebo period of one week, 15 patients (mean age 54.4 ± 10.6 and body mass index 27.7 ± 7.9) were given a single-dose of 20 mg/day nitrendipine. In these patients 4 hours OGTT was performed with 75 gr of glucose, before and after therapy; plasma insulin and C-peptide levels were determined before OGTT and at the first and third hour of OGTT, and erythrocyte K⁺, Na⁺ levels before and at the first hour of OGTT.

Plasma glucose levels did not change significantly during OGTT before and after NT therapy. Before therapy fasting, first and third hours of OGTT insulin levels were 12.4 ± 5.8 mU/ml, 88.6 ± 51.3 mU/ml, and 15 ± 9.5 mU/ml, respectively, and after therapy 15.9 ± 15.4 mU/ml, 87.2 ± 48.1 mU/ml, 18.2 ± 12.9 mU/ml, respectively. Before therapy, plasma C peptide were 2.8 ± 0.8 ng/ml, 6.7 ± 1.7 ng/ml, 4.4 ± 2 ng/ml, while fasting, at the first and third hour of OGTT, respectively, and after therapy 2.6 ± 1 ng/ml, 6.9 ± 2.9 ng/ml, 4.9 ± 2.2 ng/ml, respectively. Insulin and C peptide levels did not change with NT therapy.

Before therapy fasting and at the first hour of OGTT erythrocyte Na⁺ levels (mgNa+/mgHb) were 2.7 ± 1 and 2.8 ± 0.9 erythrocyte K⁺ levels (mgK+/mgHb) 13.7 ± 2 and 14 ± 1.8 , respectively and after therapy erythrocyte Na⁺ levels were 3 ± 1.2 and 3.4 ± 2 , erythrocyte K⁺ were 13.7 ± 1.9 , 13.3 ± 1.7 , respectively. Before and after NT therapy serum sodium and potassium levels were in normal limits. As it is seen, no significant difference was found in erythrocyte Na⁺ and K⁺ levels by NT therapy. In conclusion, nitrendipine did not significantly alter the glucose metabolism in hypertensive patients.

Doppler Echocardiographic Assessment of Left Ventricular Diastolic Function in Patients with Thalassemia

N. Özbarlas, A. Bilgiç, F. Gümriük, Ç. Atalay

Our study aims to evaluate the cardiac status of patients with thalassemia major and intermedia, to determine those with left ventricular diastolic dysfunction using pulsed Doppler echocardiography at an early stage of cardiac involvement, to investigate the effect of chelation therapy on cardiac involvement. We have studied 15 patients with thalassemia intermedia (5 to 23 years of age) and 50 patients with thalassemia major (1 to 21 years of age) on hypertransfusion program with a control group of 65 healthy children of the same age and sex.

Hematologic findings (the initial age of transfusion therapy, total transfusion amount, serum ferritin level) were recorded. Cardiac evaluation of 36 of the 65 patients with thalassemia was made both 2 hours before and 4 hours after transfusion therapy.

With M-mode echocardiography, left ventricular systolic function and with pulsed Doppler echocardiography left ventricular diastolic filling patterns were recorded. Measurements showed that in respect to the control group, patients with thalassemia major and intermedia had a restrictive pattern of left ventricular diastolic filling without evidence of systolic dysfunction [increased peak early diastolic flow velocity (E) and decreased peak late (atrial) diastolic flow velocity (A) and increased ratio of these two velocities (E/A) ($p<0.05$)]. Six (40 %) of 15 patients with thalassemia intermedia and 16 (32 %) of 50 patients with thalassemia major had diastolic dysfunction. It was also shown that a significant difference existed in left ventricular diastolic filling measurements between patients having serum ferritin level below and above 2000 ng/ml. The patients who had serum ferritin level above 2000 ng/ml showed more significant diastolic dysfunction.

Prevention of Ventricular Fibrillation After Aortic Declamping During Cardiac Surgery

E. Salman, M. Özeren, M. Hidiroğlu, E. Yücel

Ventricular fibrillation is common after aortic declamping during cardiac surgery. Ventricular fibrilla-

tion and its treatment with countershock increases the myocardial injury. In order to evaluate the effects of lidocaine who were given intravenously, 200 mg lidocaine was given 3 minutes before aortic declamping to 20 patients who were selected as a study group. No medication was given before aortic declamping to 22 patients in the control group. Several baseline variables were similar in the two groups (clamp times, medications, the extent and type of surgery).

Ventricular fibrillation occurred after aortic declamping in 5 of 20 patients in the study group and 17 of 22 patients in the control group ($p<0.05$). A mean of 1.64 countershock in the study group and mean 2.66 countershocks in the control group were necessary in cases with fibrillation ($p<0.05$).

The serum potassium level also affected the incidence of ventricular fibrillation independently of lidocaine. Elevated serum potassium levels were associated with a lower incidence of ventricular fibrillation. Although lidocaine was independently protective at all potassium levels, the combination of lidocaine and a high serum potassium level had the greatest effect in preventing fibrillation.

The Effect of Heparin on Ionized Calcium Level and Blood Pressure

E. Salman, M. Özeren, M. Hidiroğlu, E. Yücel

Heparin binds ionized calcium in vitro and possesses vasodilating properties when given as an intravenous bolus. In order to evaluate in vivo effects of heparin, 30 patients undergoing open heart surgery, were divided in two groups. 300 IU/kg bolus heparin was given intravenously to 20 patients in group I. Important decreases occurred in mean arterial pressure and ionized calcium levels in this group. 125 mg calcium chloride was given to 10 patients in group 2 just before bolus heparin administration. Ionized calcium levels become elevated in this group: there was no change in mean arterial pressure. These data suggest that slow injection of heparin would be beneficial in patients with low ionized calcium levels before cardiopulmonary bypass, especially in risky patients.

Doppler Echocardiographic Assessment of Left Ventricular Diastolic Function in Cirrhotic Patients

O. Yeşildağ, A. Baki, E. Örnek, O. Sağkan

In 16 patients with clinical and histopathological diagnosis of liver cirrhosis and ascites, left ventricular diastolic function was assessed by pulsed Doppler echocardiography before and after paracentesis, and the results were compared with those obtained from 15 healthy subjects.

In healthy subjects, mean values of mitral early filling velocity (E) and velocity after atrial contraction (A) were 59.7 ± 1.6 and 44.2 ± 1.4 cm/sec, respectively. In cirrhotic patients, before paracentesis, the mean E and A wave velocities were found to be 52.64 ± 3.4 and 64.4 ± 3.2 cm/sec respectively. In these patients, A velocity was found to be significantly higher ($p < 0.05$) than controls, without significant differences in E velocity values, suggesting the presence of diastolic dysfunction in cirrhotic patients.

After paracentesis, E and A wave velocities were found to be 54.68 ± 0.07 and 64.94 ± 0.03 cm/sec, respectively. No statistically significant change was observed in these velocities with paracentesis.

In conclusion left ventricular diastolic function was found impaired in cirrhotic patients and not altered by paracentesis suggesting the possible role of some neurohumoral and metabolic factors rather than volume overloading.

Left Internal Mammary Artery Evaluation of Preoperative Angiographic Data in 100 Patients

O. Ergene, Ö.Kozan, T.Okay, İ.Dindar, N. Çağlar, U. Deligönlü

We performed selective left int. mammary artery (İMA) angiography to 100 randomly allocated cases between February 1992 and May 1992 at the Koşuyolu Heart and Research Hospital catheterization laboratory. Patients were classified according to their physical activity as heavy, light and intermediate groups. We measured the internal diameter of the left İMA in the first 3 cm after its take-off from the left subclavian artery and at the intercostal space (the probable anastomosis site). The values at the

former site were 2.51 ± 0.3 , 2.75 ± 0.32 and 2.93 ± 0.27 mm for the light, intermediate and heavy physical activity groups, respectively. For the same groups the internal diameter of left İMA were 1.93 ± 0.19 , 2.07 ± 0.19 mm at the 5th intercostal space. There was left İMA anomaly in 15 percent of cases. We failed to observe atherosclerotic luminal stenosis in any case.

As were found the internal diameter of İMA in the light-activity group significantly lower than that of the other groups, it appears rational in this type of patients to perform preoperative İMA angiography if revascularization of the distal and posterior portions of the myocardial vascular bed is needed and/or when severe myocardial hypertrophy is associated with coronary artery disease.

Effects of Calcium Antagonists on Blood Pressure, Heart Rate and Double Product After Isometric Exercise

S.M. Karcier, N. Gürses, U. Yurdalan, B. Polat, M. Caner, S. Küçüköğlü

The antihypertensive effect of calcium antagonists was studied in patients with mild-to-moderate uncomplicated essential hypertension after isometric exercise, following a 2-week washout and one-week placebo period the measurements of blood pressure and heart rate (HR) were made at rest and after isometric exercise. After 2-week drug treatment with nicardipine (NC) (20 mgx3 daily) in 16 patients (mean age 48 ± 8), nitrendipine (NT) (20 mg once daily) in 20 patients (mean age 53) and verapamil slow-release formulation (VR) (240 mg once daily) in 12 patients (mean age 53 ± 10) the same measurements were made.

The initial and the maximum mean systolic (SBP) and diastolic blood pressure (DBP) during isometric exercise were not significantly different between three groups and HR was significantly higher in NC group than in VR group and DP was significantly lower in VR group after treatment. Although the means of the differences between initial and maximum, (Δ), SBP and DBP in three groups were not significantly different before treatment, the difference was significantly lower in VR group than the other two groups after treatment. Δ HR were signifi-

cantly lower in NC group before treatment, but this difference disappeared after therapy.

It is concluded that NC, NT and VR are similarly effective in reducing the blood pressure rise, cardiovascular response and myocardial O₂ consumption during isometric exercise. But VR reduces myocardial O₂ consumption more than NC and NT by decreasing both the HR and blood pressure.

Evaluation of Left Ventricular Functions by Doppler Echocardiography in Adolescents with Type 1 Diabetes Mellitus

E. Dönder, A. Ayata, O. Ayhan, H. Çelebi, R. Çolak, N. Arslan

Left ventricular diastolic and systolic functions (LVDF, LVSF) were investigated by Doppler echocardiography in 16 patients (9 male, 7 female, average 13.3±0.5 years) with type 1 diabetes mellitus (type 1 DM) and compared with a control group (CG) (10 male, 8 female, average 12.7±0.5 years). Compared to the CG, it was observed that among the LVDF parameters early diastolic mean and peak flow velocities (EVM, $p<0.025$, EVP, $p<0.0005$), E/A ratio ($p<0.0005$), and EVM integral ($p<0.025$) significantly decreased, acceleration (AAA, $p<0.0005$) and deceleration (ADA, $p<0.005$) averages of late diastolic flow increased, but LVSF parameters were not affected in patients with type 1 DM. In conclusion, diastolic left ventricular function was affected in our type 1 diabetic adolescent patients but not the systolic function.

Medical Publications of Turkey in 1991 Covered by Science Citation Index

A. Onat

Medical source items originating from Turkey's institutions which appeared in 1991 in journals covered by the Science Citation Index amounted to 398. This represented a share of 1.8 per mille in global medicine and constituted a rise by 15 % over the preceding year.

Internal medicine, nuclear medicine, radiology and neurosurgery increased their share of publications in 1991 more than other fields. Cardiology fared average with 11 articles (with full text). A somewhat an-

ticipated trend prevailed in the past decade: while the share of the 4 major medical faculties declined from 84 % to 53 %, this was outweighed by newer faculties as well as by institutions not affiliated with universities.

Reviews

Coronary Artery Aneurysms

N. Arslan, D. Demirkan

This brief review deals with the various aspects of coronary artery aneurysms (CAA) which are defined as a localized or diffuse abnormal dilatation along the coronary arteries. The incidence at the Gülhane Military Academy was noted as 1.6 % in 5940 patients subjected to coronary arteriography which was in agreement with many other reports. Accelerated atherosclerosis often underlies CAA in which thrombosis, distal arterial embolism and rupture are complications most commonly observed. The annual attrition rate in medically managed patients with CAA has varied around 3 %, a rate which seemed not improved by surgical approach.

Current Problems in Thrombolytic Treatment in Acute Myocardial Infarction

G. Akgün

Results obtained in the treatment with three different types of plasminogen activators in patients with acute myocardial infarction were briefly reviewed. Reocclusion or the reperfused coronary artery, particularly during the first hour, remains a major problem. The limitations and value of antithrombotic and antiaggregant treatment (heparin and aspirin) were discussed. It was pointed out that a better organization should be sought to enable earlier arrival of acutely ischemic patients to the hospitals with the purpose of exposing a greater proportion of patients with acute myocardial infarction to the benefits of thrombolytic therapy.

Case Report

Primary Sarcoma of the Heart Diagnosed by 2-D Echocardiography: A Case Report

O. Ergene, Ö. Kozan, M. Özkan, T.Y. Erben, A. Sava, C. Yakut

Primary heart neoplasms are rare. We present a case of right ventricular mass evaluated by 2-D echocardiography who underwent surgery and died postoperatively. Histopathological and electron microscopic diagnosis was undifferentiated mesenchymal cell sarcoma of the heart. In view of the variability of the

clinical features of cardiac tumors, 2-D echocardiography is a valuable tool and, in our opinion, essential for early diagnosis. To the authors' knowledge this is the first report of a case of primary cardiac sarcoma in Turkey in whom electron microscopic evaluation was done.