

## Summaries of Articles

### Extent and Severity of Coronary Artery Disease in Patients with High Serum LP(a) Levels

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Serum LPa levels were investigated in 94 patients with documented coronary artery disease. These patients were then divided in 2 groups by their serum LPa levels. First group consisted of 24 patients with high (more than 75th percentile of this group) serum LPa levels. The clinical, laboratory and angiographic characteristics and extent and severity of coronary artery disease were investigated, and compared in these two groups of patients. Men -though not women- with high LPa levels were younger ( $52.7\pm 8.2$  versus  $58.6\pm 9.9$  years,  $p<0.01$ ). Serum cholesterol levels, presence of family history, diabetes, hypertension and history of smoking were comparable in the two groups. None of the indices of severity and extent of coronary heart disease differed between the two groups. Mean number of diseased vessels was  $3.1\pm 0.9$  in group I and  $2.9\pm 1.0$  group II. The mean number of lesions with  $\geq 50\%$  narrowing were  $4.2\pm 2.4$  in group I and  $3.9\pm 2.6$  in group II. The extent scores were  $0.47\pm 0.2$  versus  $0.46\pm 0.3$ . Univariate and multivariate analysis revealed age as the only significant factor between the two groups. This prospective study suggests a lack of correlation between high serum LPa levels and the severity and extent of coronary artery disease.

### Early Results of Utilizing Long Balloons During Coronary Angioplasty

*H. Kültürsay, L. Can, A. Altıntaş, A. Akilli, M. Akın, S. Payzın, C. Türkoğlu*

Utilisation of long balloons during PTCA especially for long, diffuse lesions appears to be a promising new method in the treatment of coronary artery disease. In this study, two groups of patients with clinically similar characteristics were treated either with long balloons or conventional short balloons in order to evaluate a) the efficacy and safety of long balloons, b) the acute effects of long balloons in the normal vessel segment adjacent to the lesions.

The first group (G1) consisted of 17 patients with long lesions, and long balloons were used. The second group (G2) consisted of 20 patients with short lesions, and short balloons were used. Lesion diameter, lesion length, luminal narrowing, proximal and distal normal vessel diameters were measured quantitatively before and after PTCA, and the results were evaluated statistically.

Procedural success was complete in all patients in both groups. Mean luminal narrowing was  $73\pm 10\%$  and  $76\pm 11\%$  before dilatation and,  $17\pm 8\%$  and  $23\pm 10\%$  after dilatation in G1 and G2, respectively. There was no significant complication in any of the patients following dilatation. In 2 patients from G1 and in 1 patient from G2 intimal dissection occurred without compromising distal flow. Quantitative measurement of results were also not different between the two groups as well as in the same group before and after dilatation.

In conclusion; a) long balloons are effective and safe especially in long lesions, b) no acute changes were observed immediately after PTCA in normal proximal distal vessel segments, c) restenosis rate after long balloon utilisation needs to be studied in a longer follow-up period.

### Circadian Rhythm of Atrial Fibrillation

*A. Ünalır, N. Ata, B. Görenek, S. Kesmen, B. Timuralp*

We studied if there is a circadian heart rate variability in patients with atrial fibrillation as exists in patients with normal sinus rhythm. 34 patients with atrial fibrillation (24 female, average age  $59\pm 19$ ) and, as a control group, 10 patients with sinus rhythm were included. In most patients with atrial fibrillation the underlying etiology was determined (valvular heart disease, coronary heart disease, cardiomyopathies, hyperthyroidism). Antiarrhythmic agents, except digoxin, were stopped at least one week before the study. Ambulatory electrocardiographic monitoring was performed in all patients for 24 hours. Except for the 3.00-6.00 a.m. period, mean heart rates of patients with atrial

fibrillation and of those with sinus rhythm were similar. Mean heart rates measured in the 6.00-9.00 a.m. period were significantly higher than during other hours (except 9.00-12.00 a.m. period). We found this peak to differ from previous studies. We concluded that similar heart rate variabilities occur in patients with atrial fibrillation and those with normal sinus rhythm.

### **Late Thrombolytic Therapy in Acute Myocardial Infarction**

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60 patients admitted to Gazi University Faculty of Medicine with the diagnosis of acute myocardial infarction in the first 24 hours following the onset of symptoms have been evaluated. 26 of these patients who were admitted within 6 hours of pain and were treated with intravenous streptokinase were called the early treatment group. 16 patients admitted within 6-24 hours after pain were also treated with intravenous streptokinase and they made up the late treatment group. The control group consisted of 18 patients who were admitted within 6-24 hours after the beginning of pain and were not treated with thrombolytic agents. All patients received 500 mg aspirin and 1000 U/hour heparin within the first 24 hours.

Coronary angiograms of all patients were performed in the first week of admission and were evaluated by a single cardiologist in a blind manner according to TIMI classification of flow in the infarct-related artery (IRA). 21 of the 26 patients in the early treatment group (80.8%) and 10 of the 16 patients in the late treatment group (62.5%) had a TIMI 3 flow in their IRA. The difference between the two groups was statistically not significant ( $p>0.5$ ). Only 3 of the 18 patients in the control group had a TIMI 3 flow in their IRA (16.7%). The difference between the control group and either treatment group was statistically significant ( $p<0.001$ ,  $p<0.01$ ). Infarct-related wall motion abnormality of left ventricle was observed in 92% of the early treatment group, 75% of the late treatment group and 83% of the control group, the difference between groups being not significant ( $p>0.5$ ).

### **Demonstration of Right-to-Left Intrapulmonary Shunts in Chronic Liver Patients by Contrast Echocardiography**

A. Ünalır, T. Sarıçam, N. Ata, C. Kırdar, B. Timuralp

Contrast echocardiography is a useful method to show right-to-left intrapulmonary shunts in chronic hepatic diseases. This study sought the incidence of intrapulmonary shunts in patients with chronic liver disease. The study group consisted of 45 subjects (31 male and 14 female) with ages between 19 and 67. A total of 4 times 10 cc of physiologic saline solution and 40 mg furosemide bolus were injected through a peripheral vein to patients having sufficient echocardiographic view. To increase the intraabdominal pressure, Valsalva maneuver was performed. In apical four-chamber view, 4-6 beats following the presence of contrast material in the right heart, if passage of microbubbles to the left was observed, contrast echocardiography was regarded as positive. In 7 of the 45 subjects (16%) contrast echocardiography was positive in varying degrees.

No significant relation existed between the presence of contrast echocardiography and the age, sex, PaO<sub>2</sub>, etiology and duration of the disease, width of the portal vein and presence of esophageal varices. We concluded that positive contrast echocardiography in chronic liver disease is an indirect indicator of intrapulmonary shunts.

### **Mental Stress and Myocardial Ischemia**

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The purpose of this study was to determine whether mental stress played a significant role in myocardial ischemia. 45 patients were taken for mathematical mental stress testing (MST), exercise treadmill testing (ET) and coronary angiography. Subsequently, we identified 34 patients with a critical coronary lesion on angiography (group I) and compared them with 11 patients with normal coronary angiograms (group II). Six patients in group I had transient ischemic changes on ECG on MST. In contrast, no ECG changes were observed in group II. While the sensitivity and specificity of MST were 17.6% and

100%, respectively, the sensitivity and specificity of ET were 73.5% and 90.9, respectively. It was observed that MST increased the heart rate (HR), systolic blood pressure (SBP) and the rate-pressure product (DP) in a significant manner. With MST, the HR increased from  $81.3 \pm 13.7$  beats per minute (bpm) to  $99.6 \pm 15.8$  in group I ( $p < 0.01$ ) and from  $84 \pm 14.1$  to  $101.1 \pm 20.2$  ( $p < 0.01$ ) in group II, while SBP increased from  $137.5 \pm 20.4$  mmHg to  $161.8 \pm 24.9$  in group I ( $p < 0.01$ ) and from  $140.1 \pm 14.6$  to  $168.7 \pm 22.6$  in group II ( $p < 0.01$ ).

Furthermore, the DP increased from  $11.063 \pm 4.921$  mmHgxbpm to  $15.563 \pm 4.184$  in group I ( $p < 0.01$ ) and from  $10.954 \pm 4.872$  to  $16.091 \pm 4.685$  in group II ( $p < 0.01$ ). The increases in HR, SBP, and DP were more marked with ET in both groups. Finally, the value for the DP obtained from ET ( $28.247 \pm 5.583$  mmHgxbpm) was found to be higher than that of MST ( $15.692 \pm 5.341$ ) ( $p < 0.005$ ). Our data confirmed that mental stress could cause myocardial ischemia by increasing the HR and SBP. However, unlike ET, MST has not been recommended as a screening test in establishing the diagnosis of myocardial ischemia.

#### **Cardiotoxic and Hepatotoxic Effects of Acrivastin and Cetirizin**

*İ. Türkteş, D. Oğuz, R. Olguntürk, S. Demirsoy, S. Tunaoglu*

We studied the cardiotoxic and hepatotoxic effects of acrivastin and cetirizin in 30 patients with allergic rhinoconjunctivitis. Fifteen patients (11 female, 4 male; mean age 28.6 year) were randomly allocated to treatment with either placebo or acrivastin 32 mg twice daily. The 15 patients (9 female, 6 male; mean age 30.2 year) of the second group were randomly assigned to receive either placebo or cetirizin 20 mg twice daily for 4 weeks on a cross-over, single-blind basis. Holter monitoring was performed at baseline, after 3 and 30 days of administering active-drug and placebo alone. Liver enzymes were obtained before and after either therapy. Compared to placebo, we did not observe adverse cardiotoxic effects with either of the drugs. Also no changes were observed in liver enzymes after the treatment period. However, our short study period data do not exclude the possibility that acrivastin and cetirizin might still rarely be associated with cardiotoxic effects. Apart from

the smallness of or study population, it is possible that 2 Holter recordings might not be sufficient to diagnose transient changes. We conclude that physicians should be alert about potential side effects of all second-generation antihistaminics.

#### **4-Year Follow-up of a Turkish Cohort of Coronary Heart Disease Patients**

*A. Onat, D. Dursunoğlu*

A cohort of 173 subjects (comprising 83 women), detected to have definite or suspect coronary heart disease during a nationwide survey conducted in 1990 on a random sample of 3689 Turkish adults, was prospectively followed up with respect to mortality and development of new coronary events in the years 1993 and 1994. Information was obtained by physical examination from 43 patients in the cohort and by questionnaire from 81 patients, while 28% of patients were lost to follow-up. Nonetheless, a comparison of demographic, clinical and inherent risk factors suggested that those not followed up did not represent a group with a higher risk to death or new coronary events. Patients were followed up for a mean of  $39.7 \pm 5.2$  months.

In this period, 11 patients (8.9%) died six of whom from CHD (4.8%); two patients sustained a nonfatal myocardial infarction, one patient each developed unstable angina or electrocardiographic evidence of new myocardial ischemia, whereas 5 subjects (4%) underwent coronary artery bypass surgery. Annual incidences per 100 patients were 1.2 new nonfatal coronary event, 2.0 new cardiovascular events, and 2.7 deaths (of which 1.5 coronary deaths). The coronary and total mortality rates as well as the overall new coronary event rate were consistent with those of larger studies.

#### **Significance of Aortic Root Motion in Echocardiographic Evaluation of Left Ventricular Function in Children with Dilated Cardiomyopathy**

*Ü. B. Samanlı, A. Sarıoğlu, A. Ertuğrul*

Thirty-one children with dilated cardiomyopathy (DCM), subdivided into two groups, were evaluated by 2-D and M-mode echocardiography. Group I consisted of 20 patients with ongoing signs and

symptoms and echographic evidence of DCM, whereas Group II consisted of 11 DCM patients who were "normalised" during the course of follow-up and treatment. Careful measurements of the aortic root dimension and aortic wall motion were carried out. The "aortic root motion", the ratio of average aortic wall motion to aortic dimension at end-diastole, was introduced as a new parameter. Also, the "aortic root expansion ratio", was calculated as the ratio of cyclic difference of aortic dimension to the aortic dimension at end-diastole. Results were compared with those from twenty-four healthy children.

The "aortic root motion" was found to be  $56.2 \pm 7.13$  % in healthy children. Group I had much depressed values ( $39.9 \pm 11.0$  %). The "normalized patients" of Group II had values ( $44.6 \pm 7.17$  %) that, although significantly higher than in the former group, were still significantly below those from normal children. This new parameter differentiated all three groups from one another ( $p < 0.01$  for all groups). The "aortic root expansion ratio" differentiated only Group I from the two other groups.

The "aortic root motion" correlated well with left ventricular shortening fraction ( $r=0.69$ ,  $p < 0.001$ ) when all the children were evaluated together in a large group ( $n=55$ ), but showed no significant correlation within each group. We concluded that this new parameter of ventricular systolic function can be useful in the long-term serial follow-up of patients with dilated cardiomyopathy.

### **Doppler Echocardiographic Evaluation of Left Ventricular Function in Children with Dilated Cardiomyopathy**

Ü.B. Samanlı, A. Sarioğlu, A. Ertuğrul

Thirty-one children with dilated cardiomyopathy (DCM), subdivided into two groups, were evaluated by 2-D, M-mode and pulsed wave Doppler echocardiography. Group I consisted of 20 patients (age  $4.4 \pm 3.67$  years) with ongoing symptoms, radiological findings and echographic evidence of DCM according to 2-dimensional (spherical shape) and standard M-mode criteria: left ventricular dimension (LVDD), shortening fraction (SF) and mitral-septal-separation (MSS). Group II consisted of

11 DCM patients (age  $4.3 \pm 2.64$  years) who initially met similar criteria as Group I patients. But, after a follow-up and treatment period of 1.5 to 3.5 years, the clinical, radiological and echocardiographic findings (left ventricular configuration, dimension, SF and MSS) of these eleven patients had returned to normal at the time of this investigation.

Careful measurements were taken from the flow-velocity curve of the ascending aorta: Maximal velocity ( $V_{max}$ ), velocity-time integral (VTI), acceleration, acceleration time (AT) and LV ejection time (LVET). The ratio of acceleration time to LV ejection time (AT/LVET) was calculated. The results were compared with those from 24 healthy children (age  $6.5 \pm 3.2$  years).

The values of  $V_{max}$ , VTI, acceleration and AT/LVET for healthy children were  $1.30 \pm 0.21$  m/s,  $22.9 \pm 4.26$  cm,  $22.0 \pm 5.14$  m/s/s and  $0.23 \pm 0.05$ , respectively.  $V_{max}$ , VTI and acceleration were significantly depressed and AT/LVET was increased in Group I patients ( $p < 0.001$ ). Furthermore, VTI, acceleration and especially AT/LVET could also differentiate the "normalised" patients of Group II from the two other groups, signifying the presence of some underlying defect in systolic function although standard M-mode criteria were found normal in these children. We concluded that these Doppler parameters of systolic ventricular function should be used during long-term follow-up of patients with dilated cardiomyopathy to decide whether or not systolic left ventricular function is completely normalised.

### **Restrictive Cardiomyopathy in Children: A Clinicopathologic Study in 12 Cases**

E. Çil, S. Özkutlu, M. Saraçlar, G. Kale

Clinical and laboratory findings were compared with the clinical course and prognosis in 12 children with restrictive cardiomyopathy. The mean age of the patients was 5.0 years. The most common symptoms and clinical findings were fatigue, abdominal distension, exertional dyspnea and hepatomegaly. ECG demonstrated evidence of atrial dilatation and telecardiogram showed cardiomegaly in all cases. Echocardiography revealed left or biatrial dilatation. In eight cases who underwent cardiac catheterization,

atrial mean pressures and ventricular end-diastolic pressures were above normal. Endomyocardial biopsy in six cases showed thickening of the endocardium, hypertrophy in myocardial fibers and interstitial fibrosis.

### **Color Flow Doppler Follow-up After Transcatheter Occlusion of Ductus Arteriosus**

*İ.L. Saltık, A. Sarıoğlu, G. Batmaz, N. Yazıcıoğlu*

To evaluate the prevalence and natural history of residual shunting after ductal occlusion with Rashkind double disc umbrella, 18 patients were evaluated by color flow Doppler echocardiography between May 1992-July 1994. The patients' age ranged from 2 to 10 years (average  $5.14 \pm 2.31$ ). 8 were male and 10 were female. Successful occluder device implantation was achieved (12 mm device was used in 10, 17 mm device was used in 8) in all patients without embolisation. Continuous murmur disappeared in 16 patients and continued in two patients with significant residual shunting on postocclusion aortography.

All patients had serial color flow echocardiographic follow-up 1 day, 1 month, 3 months, 6 months following the procedure and with 6 month- intervals afterwards. Follow-up period ranged from 1 to 24 months (average  $9.9 \pm 7.9$  months). Residual ductal shunting was 83.3% on first day after occlusion and decreasing to 55% at 3 months, 42.8% at 6 months and 36.6% at the end of 2 years. Follow-up with color Doppler echocardiography is indicated in patients undergoing transcatheter PDA occlusion, since residual shunting may be detected by color Doppler echocardiography even after successful haemodynamic occlusion.

### Case Reports

#### **Pectoral Implantation of Transvenous Defibrillator Lead Systems and Implantable Cardioverter Defibrillator: Case Report**

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A 21-year-old man was admitted to our clinic due to cardiac arrest. Ventricular fibrillation was detected and resuscitation was successful. Clinical and laboratory examinations revealed arrhythmogenic right ventricular dysplasia. During the 2 years of follow-up period, attacks of fast ventricular tachycardia (VT) developed in spite of medical therapy with quinidine, or metoprolol and amiodarone. During electrophysiological study, the clinically encountered fast VT originating from the right ventricle was induced, which responded neither to programmed stimulation, nor to antiarrhythmic drugs and degenerated to ventricular flutter. It was converted to sinus rhythm by cardioversion. We decided to implant a cardioverter-defibrillator (ICD). This was the first implantation of transvenous-pectoral cardioverter-defibrillator (Jewel PCD) in Turkey at 8.7.1994. The role of ICD in the therapy of sudden death survivors and new improvements in ICD technology was reviewed.

#### **Transcatheter Closure of Right Coronary Artery-Pulmonary Artery Fistula**

*A. Akıllı, M. Akın, H. Kültürsay, S. Payzın, C. Türkoğlu*

A platinum-fibered microcoil was used to occlude a coronary artery to pulmonary artery fistula. The patient was a 32-year-old woman with chest pain, palpitation and shortness of breath for 4 years. Her ECG, exercise test and thallium scintigraphy were normal. In the right coronary injection, a fistula was demonstrated from the sinus node artery of the right coronary artery to pulmonary artery which was 1.3 mm in diameter. Qp/Qs was calculated 1.42 with the Fick method. A 2x10 mm fibered platinum microcoil was used for transcatheter occlusion. In the control coronary angiography there was virtually no shunt 15 min after the procedure. Transcatheter occlusion is an alternative treatment technique to surgery in the coronary artery fistulas. The use of this technique leads to a precise and effective occlusion of the fistula, resulting in less myocardial damage and reduces morbidity. Much shorter hospital stay is needed for this technique.