

## Summaries of Articles

### Interrelations Between Echocardiographic Measurements of Left Ventricle, Left Atrium, Ascending Aorta, Defect Diameter and Pulmonary Arterial Pressure in Isolated Ventricular Septal Defect

T. Onat, G. Sağın

Diameters of VSD (VSDd), left ventricle (LVD), left atrium (LAd) and ascending aorta (AsAod) as well as right ventricular systolic pressure (RVP) which was determined from LV-RV gradient were measured in 58 isolated VSD patients by color flow Doppler, two-dimensional and M-mode echocardiography. Body surface area (BSA) was estimated from weight. In addition to the above variables, quotient parameters such as VSDd/BSA, LVd/Aod, LAd/Aod, LAd/BSA, LVd/BSA, Aod/BSA were derived.

Linear interrelationships were calculated between the above mentioned parameters including their relationship with age. Weighted determinants of the following pure parameters such as VSDd, LVD, LAd, AsAod and RVP were established by multifactorial analysis. According to the results, VSDd was very significantly and positively correlated with RVP and LAd (multiple  $r=0.75$ ). Its negative relationship with BSA and positive relationship with AsAod ( $r=0.20$ ) were not found to be significant.

RVP is correlated positively with VSD, its square, as well as LVd and inversely with BSA (multiple  $r=0.73$ ). LAd and AsAod are not primary factors influencing RVP. LAd goes parallel with LVd, VSDd and AsAod (multiple  $r=0.79$ ). BSA and RVP are not primary factors influencing LAd in VSD. LVd goes parallel with BSA, LAd and RVP (multiple  $r=0.79$ ). LAd is a better determinant of VSDd than is LVd. AsAod is mainly related with BSA, i.e. with growth ( $r=0.79$ ). LAd makes a small contribution to this estimation (multiple = 0.79). On the other hand, VSDd, RVP and LVd are not primary factors influencing AsAod.

Assessment of the relationship between echocardi-

graphically determined diameters of left ventricle, left atrium, ascending aorta, defect size and pulmonary artery pressure in isolated ventricular septal defect.

### Our Experience with Dual Sensor Rate-adaptive Permanent Pacemakers

N. Yazıcıoğlu, C. Çeliker, C. Demiroğlu

In this study we present the rate-adaptive behavior of a new developed dual sensor rate responsive pacemaker (PM) combining QT interval and activity. We tested this dual sensor (DS) PM in 5 patients ( $56\pm 8$  yrs) with implanted Topaz model 515. We compared the DS rate response to that of the individual sensors during three treadmill exercise stress tests.

The DS rate response showed a fast onset of the rate response. After the first minute of exercise, the rate increase was proportional to the level of exercise. During rest the rate decreased gradually.

We conclude that at onset of exercise DS showed rate response due to activity sensor. Then the rate increase and rate decay was achieved by QT interval information.

### The Evaluation of Pulmonary Venous Flow by Transesophageal Pulsed Doppler Echocardiography in Patients with Rheumatic Mitral Stenosis

A. Narin, G. Tayyareci, S. Aytekin, D. Ünal

The aim of this study was to evaluate the pulmonary venous (PV) flow by transesophageal pulsed Doppler echocardiography in 14 patients with rheumatic mitral stenosis (MS) in sinus rhythm and 5 healthy subjects. PV flow was detected by transesophageal echocardiography and velocity-time integral was determined. Pulmonary capillary wedge (PCW) pressure of 16 patients was measured with cardiac catheterization and of 5 patients with Swan-Ganz technique peroperatively.

PCW pressure was  $25\pm 6$  mmHg in MS group and

6±1 mmHg in control group ( $p<0.0001$ ).

PV systolic flow rate was  $41\pm15$  cm/sec in MS group and  $61\pm22$  cm/sec in control group ( $p<0.05$ ). PV diastolic flow rate was  $48\pm17$  cm/sec in MS group and  $27\pm16$  cm/sec in control group ( $p<0.02$ ). PV late systolic flow rate (-A wave) was  $23\pm8$  cm/sec in MS group and  $21\pm5$  cm/sec in control group ( $p$ : ns). PV systolic, diastolic and late diastolic velocity-time integral values were ( $5.8\pm2.6$ ), ( $7.4\pm3$ ), ( $2.3\pm0.8$ ) cm in MS group and ( $9.4\pm4.3$ ), ( $4.6\pm1.9$ ), ( $2\pm1$ ) cm in control group respectively. There were no significant differences between the two groups. PV systolic flow / PV diastolic flow value was  $<1$  in MS group and  $>1$  in control group.

Hence, in MS group with high left atrial pressure PV systolic flow rate was significantly lower and PV diastolic pressure was significantly higher than the control group. Systolic velocity-time integral value and PV late diastolic flow was slightly higher in the MS group but it was not significant. Diastolic velocity-time integral value was lower in the MS group but it was also not significant.

#### The Prognostic Evaluation of Q-Wave and Non Q-Wave Myocardial Infarction

D. Şener, V. Aytekin, İ. Fıratlı, M. Öztürk, C. Demiroğlu

To examine the in-hospital and long-term prognosis of Q wave (Q) and non-Q (Non-Q) myocardial infarction (MI), we evaluated retrospectively 171 patients admitted to the coronary care unit with the first myocardial infarction. The patients were classified into two groups according to the presence of a new pathologic Q wave in the related electrocardiographic leads. 103 patients (pts) in the Q-wave group and 68 pts in the Non-QMI group were evaluated at the end of 36 months.

In-hospital period: congestive heart failure and pericarditis were not significantly different in two groups. Ventricular tachycardia and/or ventricular fibrillation was detected in 13 (12.6 %) pts in QMI and 1 (1.5 %) pt in Non-QMI groups ( $p<0.05$ ). Different kinds of conduction disturbances were seen in 18 (17.5 %) pts in QMI and 4 (5.9 %) pts in Non-QMI groups ( $p<0.05$ ). Early post-MI angina as de-

tected in 11 (10.7 %) pts in QMI and 17 (25 %) pts in Non-QMI groups ( $p<0.05$ ). In-hospital mortality was not significantly different in two groups.

At the end of the 36 months: late post-MI angina was observed in 32 (31 %) pts in QMI and 41 (60 %) pts in Non-QMI groups ( $p<0.001$ ). Four (3.9 %) pts in QMI and 6 (8.8 %) pts in Non-QMI group underwent bypass surgery ( $p$ :ns). Reinfarction and mortality rates were not significantly different in two groups.

Thus heart failure and pericarditis (soon after MI), reinfarction, in-hospital and long-term mortality were not significantly different in two groups. Ventricular arrhythmias and the conduction disturbances in the hospital period were higher in QMI group, whereas early and late post-MI angina pectoris was higher in Non-QMI group.

#### Determination of Diastolic Function by Radionuclide Ventriculography in Patients with Coronary Artery Disease

V. Sansoy, H. Sayman, D. Güzelsoy, C. Demiroğlu.

To assess the diagnostic value of the analysis of cardiac diastolic function by radionuclide ventriculography (RVg) for the detection of coronary artery disease (CAD), we determined the left ventricular peak filling rate (PFR) and time to peak filling rate (TPFR) in 30 normal subjects (mean age  $49.6\pm7.9$ ) and in 30 patients with catheterization-proven CAD and normal ( $> 50$  %) left ventricular ejection fraction (mean age  $52.9\pm7.2$ ) by RVg. The PFR in patients with CAD was found to be significantly reduced when compared with the normal subjects ( $2.27\pm0.60$  end-diastolic volume/second [EDV/s] versus  $2.76\pm0.57$  EDV/s,  $p<0.01$ ). TPFR was longer in patients with CAD than in normal subjects ( $216\pm32$  ms versus  $191\pm29$  ms,  $p<0.01$ ). Among patients with CAD, PFR and TPFR were significantly different than the normals in the groups with left main-three vessel disease and one vessel disease while they were not found to be different compared to the normals in the group with two vessel disease. Considering a PFR of  $> 2.50$  EDV/s normal, the sensitivity and specificity of PFR for the detection of CAD was found to be 70 % for both.

It is concluded that diastolic dysfunction is demonstrable by RVg in patients with CAD whose systolic function is normal and this may have a role in the diagnosis of CAD patients with high risk and who cannot exercise.

### **The Evaluation of Ventricular Arrhythmias Before and After Successful PTCA**

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

To evaluate the effect of successful percutaneous transluminal coronary angioplasty (PTCA) on ventricular arrhythmias, ambulatory 24-hour Holter recordings were taken 1 to 15 days before PTCA, soon after and 15 days after the procedure. These three groups of recordings were compared to each other with respect to the number of single ventricular premature beats (VPBs) and total VPBs, and the number of patients having couplet VPBs, bigeminy-trigeminy, idioventricular rhythm and ventricular tachycardia.

The mean value of single VPBs detected was  $202 \pm 512$  before PTCA,  $317 \pm 730$  soon after and  $285 \pm 760$  15 days after PTCA (p:ns), the mean value of total VPBs was  $244 \pm 571$  before PTCA,  $344 \pm 794$  soon after and  $303 \pm 832$  15 days after PTCA (p:ns). There were also no significant difference between these 3 groups of recordings with respect to the number of patients with total VPBs, couplet VPBs, bigeminy-trigeminy, idioventricular rhythm and ventricular tachycardia.

Although it was not statistically significant, the mean values of single and total VPBs were increased after PTCA. The rise in these values were more striking soon after PTCA. In conclusion, PTCA does not affect ventricular arrhythmias significantly.

### **Usefulness of Dobutamine Stress Echocardiography for Detecting Ischemic Heart Disease**

*C. Genç, M. Özkan, C. Uyan, B. Dokumacı, O. Balkaya, R. Karaoğuz, H.F. Töre, E. Işık, O. Pektaş*

To assess the value of dobutamine stress echocardi-

ography for detecting coronary artery disease (CAD), 30 patients (mean age  $50.9 \pm 1.7$  years) were studied. Maximal dobutamine used was 30 mg/kg/min. The 2D-echocardiograms were digitally stored and displayed in a format that allowed simultaneous analysis of rest and stress images. Development of a new abnormality in regional wall motion was used as a criterion for positivity for the dobutamine infusion. Significant coronary artery disease (50 % diameter stenosis) assessed by coronary angiography was present in 21 of 30 cases. Compared with coronary angiography, the overall sensitivity of dobutamine echocardiography for detecting CAD was 95 %, the specificity 100 % and the accuracy 96.6 %. No complications were observed. We conclude DSE is a safe and accurate method for detecting coronary artery disease.

### **Effect of Streptokinase Administration on Liver Function Tests**

*R. Enar, S. Çatırlı, C. Çeliker, A. Kaya, M. Sezgiç, N. Yazıcıoğlu, C. Demiroğlu*

The effect of streptokinase (SK) on hepatic function tests was studied in two groups during acute myocardial infarction (AMI). Group A consisted of 28 patients treated with SK, and Group B (10 patients) without SK administration. Liver function tests were evaluated by measuring bilirubin, alkaline phosphatase (AP), alanine aminotransferase (ALT), and gamma glutamyl transpeptidase (GGT) on admission and then on the first, third, fifth day, and the first, third month after AMI in Group A. In Group B the same tests were done on admission and on the third, fifth day of AMI.

The values were not significantly different on admission between the two groups. When compared with initial values, AP, ALT and GGT increased significantly ( $p < 0.005$ ) ( $55 \pm 13$ ,  $98 \pm 80$ ,  $63 \pm 55$  IU/ml, respectively), especially on the first month in Group A. By contrast, liver function tests did not increase significantly in the two groups during AMI.

In conclusion, a reversible increase in liver enzymes suggesting unicteric, cholestatic and hepatocellular damage was seen in patients treated with SK during AMI. Though SK did not lead to acute hepatic fail-

ure or chronic hepatic disease in these patients we think that we should be careful about the patients with known hepatic disease when we are going to use SK.

### **Comparison of Office Blood Pressures in Supine, Sitting and Standing Positions with Ambulatory Blood Pressures**

*S. Aksöyek, A.R. Kazazoğlu, T. Okay, O. Sancaktar*

This study was performed in 88 patients with mild to moderate hypertension with the aim to demonstrate the variability of blood pressure in accordance with the position of the body. Blood pressure of the patients was measured in supine, sitting and standing positions twice for two days followed by 24-hour ambulatory blood pressure monitoring. Mean blood pressures in supine, sitting and standing positions were  $147 \pm 12/92 \pm 7$ ,  $151 \pm 13/97 \pm 8$  and  $156 \pm 13/103 \pm 7$  mmHg, respectively.

The mean of all three positions was  $151 \pm 12/97 \pm 7$  mmHg. Diastolic blood pressures were significantly different from each other in each position ( $p < 0.01$ ). Systolic blood pressures were not found to be different in supine and sitting positions but both were significantly different from the standing systolic pressure ( $p < 0.01$ ). The mean awake and 24-hour ambulatory blood pressures were  $147 \pm 12/90 \pm 7$  and  $141 \pm 12/85 \pm 7$  mmHg respectively. Correlation coefficients of office blood pressures and ambulatory blood pressures were 0.74 to 0.80 for systolic pressure and 0.55 to 0.65 for diastolic pressure depending on the position of the body. The best correlation was obtained with the mean awake ambulatory blood pressure and the mean of office blood pressures in all positions (systolic 0.80, diastolic 0.65). It was confirmed that the position of the body influences the estimation of blood pressure; hence, it would be most reliable to use the values obtained in the sitting position.

### **Successful PTCA to a Culprit Lesion in a Patient with Anomalous Left Circumflex Artery: Case report**

*N. Çağlar, İ. Dindar, O. Ergene, Ö. Kolan, F. Turan*

As an example of some technical difficulties during the PTCA procedure in patients with coronary artery anomalies, we reported in this paper a successful angioplasty to a culprit lesion in the left circumflex artery in a patient with an anomalous origin of left main coronary artery which originated from the right sinus of Valsalva. We used FR4 guiding catheter for the cannulation of the left main coronary artery.

### **Total Cavo-pulmonary Anastomosis in Complex Congenital Cardiac Anomalies**

*C. İkizler, A. Sezgin, M. Alp, S. Aşlamacı, A. Taşdelen, A. Göncü, E. Ekici*

Total cavo-pulmonary anastomosis, defined as a modification of the Fontan procedure, was done to three congenital cardiac cases. The first patient had left atrial isomerism, levocardia, double vena cava superior, double outlet right ventricle, atrial septal defect, ventricular septal defect and pulmonary stenosis. The second patient had d-transposition of the great arteries, atrial septal defect, ventricular septal defect, pulmonary stenosis and hypoplastic right ventricle. The third patient had d-transposition of the great arteries, atrial septal defect, ventricular septal defect and pulmonary stenosis. In all three patients the criteria for this procedure were present. Significant clinical and hemodynamic post-operative improvement occurred in all three patients.

We believe that successful results will be obtained particularly in patients, in whom their morphology is well described and hereby qualify to be treated surgically by total cavo-pulmonary anastomosis.