

## Summaries of Articles

### Editorial Comment

#### **Assessment of Scope and Contribution of Two Cardiovascular Surveys in Turkey**

A. Onat

The scope, consistent aspects, disparities and relative contribution of the so-called Turkish Heart Study, the preliminary results of which have newly been made public, and the survey conducted in 1990 by the Turkish Society of Cardiology (TSC) and already published in international medical journals were discussed. In contrast to the random sampling method employed in the latter, the new survey can hardly claim to comprise a sample representative of the Turkish population.

In addition to the measurement of serum Lp(a) and phenotyping of apoprotein E, the new study's major contribution was the establishment of very low levels of plasma HDL-cholesterol in the Turkish population. Otherwise, regarding basic cardiovascular risks, it has only substantiated the results of the TSC survey which had a wider scope, a representative sample, investigated the prevalence of coronary heart disease and the relative risk of seven factors.

### Clinical Investigations

#### **Serum Troponin T in Acute Myocardial Infarction**

L. Tokgözoğlu, E. Oram, K. Aytemir, H. Oral,  
C. Özkuyumcu, S. Aksöyek, Y. Laleli,  
A. Karamehmetoğlu

Troponin T (Tn-T) is a cardiospecific antigen released from the damaged myocardium. The serum levels of Tn-T in healthy individuals are negligible. These properties suggested that Tn-T might be useful in the diagnosis of AMI. To evaluate the release profile of Tn-T and compare it with CK-MB levels, 15 patients who were hospitalized in the Coronary Care Unit of the Hacettepe University hospital with chest pain and typical ECG changes of AMI were studied (10 male, 5 female, age 35-68; mean age 54). Only patients who did not receive thrombolytic

therapy were evaluated to study the natural release curve of Tn-T. Serum levels of Tn-T and CK-MB levels were measured after certain intervals. Both Tn-T and CK-MB levels increased within a few hours. Tn-T levels peaked at 24 hours, followed by a plateau and started to decrease on the 4th day. CK-MB levels peaked at 12 hours. The sensitivity of Tn-T at 6, 12, 48, hours and 7 days was 54, 73, 100, 86 %, respectively. The sensitivity of CK-MB at the same time intervals was 54, 86, 100, 60, 0 % respectively. Both methods were useful for the early diagnosis of acute myocardial infarction ( $p>0.05$ ). However, Tn-T was more sensitive after 36 hours. ( $p<0.05$ ).

We concluded that Tn-T levels start to increase within a few hours similar to CK-MB but stay elevated for a longer period of time permitting a longer diagnostic window. Although Tn-T cannot replace CK-MB in the early diagnosis of AMI, it will be a helpful alternative in patients with borderline CK-MB levels or those who are first seen later in the course of myocardial infarction.

#### **Diagnostic Value of Adenosine Deaminase in Tuberculous Pericarditis**

Ö. Göldeli, K. Kulan, C. Kulan, B. Komsuoğlu

Because of the difficulty in isolating the causative organism, the diagnosis of pericardial tuberculosis is often doubtful. Adenosine deaminase (ADA) activity was measured in the pericardial fluid of 108 patients of undetermined origin. The causes of pericardial fluid fell into 5 groups: I. tuberculosis (20 cases), II. idiopathic (82 cases), III. neoplasia (3 cases), IV. purulent bacterial infection (2 cases) and V. radiotherapy (1 case). A tuberculous etiology was diagnosed by bacterial examination of the pericardial fluid (4 cases), histologic study of the pericardium (2 cases), presence of associate active extracardiac tuberculosis (9 cases) and good response to antituberculous treatment (5 cases).

The highest mean ADA value ( $126\pm 16.68$  u/l) was found in group I. which in other groups values were  $29.4\pm 8.9$ ,  $27.7\pm 2$ ,  $29.5\pm 13.4$ ,  $26$  u/l, respectively.

There was a statistically significant difference in this respect between group I and the other groups ( $p<0.001$ ). When 70 u/l was taken as discriminant value for the diagnosis of tuberculous pericarditis, then the adenosine deaminase value had a 100 percent sensitivity and 91 percent specificity. Measuring the pericardial concentration of adenosine deaminase therefore is a helpful procedure in the diagnosis of tuberculous pericarditis.

### **The Effect of Digoxin and Verapamil on Heart Rate, Pulmonary Artery and Pulmonary Wedge Pressure in Patients with Pure Mitral Stenosis**

*E. Başar, S. Çetin, A. Ergin, N.K. Eryol, A.H. Köker*

The effect of verapamil and digoxin on heart rate, mean pulmonary artery pressure and pulmonary wedge pressure was investigated in patients with pure mitral stenosis. Both groups consisted of 15 patients (6 atrial fibrillation, 9 sinus rhythm in the digoxin group; 8 atrial fibrillation, 7 sinus rhythm in the verapamil group). Heart rate, pulmonary artery pressure and pulmonary wedge pressure were remeasured after intravenous administration and 7 days of oral treatment.

In patients with sinus rhythm there was no significant change in mean pulmonary artery pressure, pulmonary wedge pressure and heart rate after digoxin treatment ( $p>0.05$ ). Although, there was no significant decrease in heart rate with verapamil treatment in patients with sinus rhythm ( $p>0.05$ ), mean pulmonary artery pressure decreased significantly ( $p<0.05$ ). In this group pulmonary wedge pressure did not show any significant decrease after intravenous verapamil therapy, but it declined remarkably after 7 days of oral therapy ( $p<0.05$ ).

Although digoxin caused significant reduction in heart rate in patients with atrial fibrillation ( $p<0.05$ ), the decreases in mean pulmonary artery pressure and pulmonary wedge pressure were not significant. The heart rate diminished with verapamil in patients with atrial fibrillation ( $p<0.01$ ). In this group, pulmonary artery pressure and pulmonary wedge pressure showed a significant decrease, too.

Our study shows that verapamil is more effective than digoxin for reducing heart rate, mean pulmo-

nary artery pressure and pulmonary wedge pressure in patients with pure mitral stenosis who are either in sinus rhythm or in atrial fibrillation.

### **Comparison of Regurgitant Jet Size by Transesophageal Versus Transthoracic Doppler Color Flow Imaging**

*A. Özergin, K. Gürkan, M. Şişman, T. Ulusoy, F. Maçın, S. Ünal*

Doppler color flow imaging by transthoracic (TT) approach for the assessment of valvular regurgitation is a well-established noninvasive method. According to recent reports the transesophageal (TE) technique is considered to be more reliable for this purpose. In order to reassess this view, we compared the maximal regurgitant jet areas of 34 patients derived from Doppler color-flow imaging by either TT or TE approach.

Whereas 56 regurgitant lesions were visualized by TE flow imaging (31 mitral, 13 aortic, 28 tricuspid jets), TT yielded fewer regurgitant lesions for each valve (26 mitral, 10 aortic, 20 tricuspid) ( $p<0.001$ ). Moreover visual grading of individual valve lesions with each technique revealed a higher grade of regurgitation, whether classified as mild (32 versus 34), moderate (22 versus 18), or severe (18 versus 4), by TE than by TT imaging. Although maximal jet areas were significantly greater in TE technique (TE jet areas:  $5.4\pm 2.7\text{m}^2$ , TT jet areas:  $2.9\pm 1.6\text{cm}^2$ ,  $p<0.001$ ), there was a good overall correlation between the two approaches ( $r=0.76$ ,  $\text{TE}=1.2\text{ TT} + 1.7$ ,  $p<0.001$ ).

In conclusion, despite the lack of angiographic examinations comparing our results, the TE technique appears more sensitive than the TT technique for the assessment of valvular regurgitation.

### **Transthoracic and Transesophageal Echocardiographic Findings in Infective Endocarditis**

*Ö. Kırımlı, S. Güneri, B.Y. Seyithanoğlu, Ö. Özkumova, C. Çavdar, M. Özer*

Transthoracic (TTE) and transesophageal echocardiographic (TEE) findings were compared in 11 patients with infective endocarditis. Double valves (mitral+aortic) had been replaced in two patients.



Severe aortic regurgitation was detected in 9 patients by both methods. While mitral valvular regurgitation was seen by TTE in one of the 2 patients with double valves replacement, mitral valvular and paravalvular regurgitations were seen by TEE in both of these. Only in 3 patients, vegetations having 11 to 18 mm dimensions were detected on aortic cusps by TTE. However, vegetations of 3 to 18 mm size were detected by TEE in 8 patients on aortic cusps and in two patients with double-valve replacement on both prosthetic valves.

Hence, TEE is a valuable diagnostic method in the detection of vegetations in infective endocarditis and TEE should be applied in every patient with suspected infective endocarditis.

### Reviews

#### **Circulatory Support by Cardiomyoplasty and Aortomyoplasty**

*A. Kalangos, G. Tayyareci, J.C. Chachques,  
P. Grandjean, A. Carpentier*

The finding that skeletal muscles can be made resistant to fatigue by progressive electrical stimulation has been used as a means of providing circulatory support in cardiac surgery. The first application of this discovery was dynamic cardiomyoplasty, performed for the first time in man in 1985 at the Broussais Hospital. The latissimus dorsi muscle is transposed into the thorax, then attached around the heart and finally stimulated synchronously with the ventricular systole.

So far, more than 200 patients in the whole world (including 57 at the Broussais Hospital) have undergone this operation with results that are increasingly encouraging. In these cases the muscle is used to reinforce or replace the left or right ventricle, but other applications are being studied, such as double cardiomyoplasty (left latissimus dorsi and the right pectoralis major muscles), cardiomyoplasty of the right atrium and aortomyoplasty which produces aortic counterpulsation.

The development of these techniques underlines the ever growing interest raised by this type of autologous circulatory support.

#### **Can Myocarditis and Dilated Cardiomyopathy be Differentiated from Each Other in Pediatric Patients?**

*İ. Akman, R. Eker Ömeroğlu, A. Dindar*

Dilated (congestive) cardiomyopathy (DCM) and myocarditis are conditions that cannot be differentiated on clinical grounds. Most patients consult physicians with symptoms related to congestive heart failure and dysrhythmias. In an important number of DCM patients, the etiologic factor is myocarditis. Most patients with myocarditis are cured but approximately 12 % of them develop chronic cardiomyopathy; so patients with myocarditis must be followed-up closely in respect to myocardial dysfunction.

The noninvasive diagnostic methods used for the differential diagnosis of myocarditis and DCM are similar in both conditions. The definite diagnosis of myocarditis is reached by endomyocardial biopsy, but in DCM which has a heterogenous etiology, myocardial lesions are variable. There are false positive and negative results in endomyocardial biopsy in both conditions. This article aimed to discuss the differential diagnosis of myocarditis and dilated cardiomyopathy in the light of recent literature.

#### **A Different Mechanism in the Treatment of Ischemic Heart Disease: K<sup>+</sup> Channel Activation and Nicorandil**

*F. Mercanoğlu, N. Koylan*

Nicorandil, investigated in many studies in the last 10 years, has a structure and mode of action similar to organic nitrates in addition to its K<sup>+</sup> channel opener effect, and a different and probably wider therapeutic spectrum can be achieved by this property of the drug. Nicorandil decreases both preload by means of cGMP-induced vasodilatation and afterload by K<sup>+</sup> channel activation, but it does not give rise to an increase in heart rate. Tolerance, the greatest problem of nitrates, does not develop during treatment with this drug.

Nicorandil decreases both systemic vascular resistance, left ventricular end-diastolic pressure and pulmonary artery wedge pressure and increases both ejection fraction and cardiac index despite having no

primary inotropic effect in patients with congestive heart failure. In addition, nicorandil, by its K<sup>+</sup> channel activating effect, decreases area of infarction and reperfusion injury independent from its hemodynamic effects. Many further large and long-term studies are needed to confirm these.

### **Anti-Aldosterone Therapy in Congestive Heart Failure**

*N. Kızılkaya, ME. Korkmaz, H. Müderrisoğlu*

Apart from the well-defined renal effects, recent studies have shown the direct effects of aldosterone on cardiovascular system. These studies have shown that besides renal receptors, there are also aldosterone receptors in the heart, great vessels and brain. Stimulation of these receptors in mice may cause myocardial fibrosis and vasoconstriction while anti-aldosterone therapy can inhibit these untoward effects. Such therapy probably can also reduce the total mortality in patients with congestive heart failure. More importantly, aldosterone antagonists display these beneficial effects both on high and low blood pressure levels. These observations imply that anti-aldosterone therapy is effective through multiple mechanisms in congestive heart failure.

### Case Reports

#### **Left Circumflex Artery Arising as a Terminal Extension of the Right Coronary Artery**

*O. Sağkan, E. Örnek, O. Yeşildağ*

We found two patients with anomalous origin of coronary arteries among 450 patients who underwent coronary angiography at our clinic. The case presented herein is a rare anomaly in which the circumflex coronary artery arises as a terminal extension of the right coronary artery. The main stem and obtuse branches of the artery were normal and well-developed. The patient was a 64-year-old man who was mainly suffering from intermittent claudication

of his left leg, and the coronary anomaly was asymptomatic.

#### **Transcatheter Approach in Pulmonary Embolization of Rashkind Prosthesis in PDA Occlusion**

*Ü. Aydoğan, A. Dindar, E. Dayioğlu, Y.İ. Ayhan, C. Barlas, T. Cantez*

The most common complication in transcatheter PDA occlusion with Rashkind prosthesis is embolization of the device to the pulmonary artery. In this paper, possible reasons of the embolization and transcatheter retrieval of the occluder are discussed.

Furthermore, our preliminary experience in 4 patients with transcatheter removal of the Rashkind prosthesis and repetition of the occlusion procedure was reported.

#### **Acute Myocardial Infarction Secondary to Bacterial Endocarditis in a Child with Congenital Aortic Stenosis**

*B. Öcal, S. Atalay, A. İmamoğlu, H. Gümüüş, M. Kal*

Although peripheric emboli is a common complication of bacterial endocarditis, emboli to the coronary arteries resulting in myocardial infarction are rare, especially in childhood. We describe a 14-year-old child with congenital aortic stenosis who developed non-Q myocardial infarction secondary to the embolic complication of bacterial endocarditis. His echocardiographic examination revealed a vegetation under the aortic valve and his valvular gradient was found to be 45 mmHg. Pneumococci were cultured from his blood. In the eight day of hospitalization the patient developed non-Q myocardial infarction. The diagnosis was made of on the basis of ST segment depression in leads I, II, III, aVF, aVL, V2-6 and significant elevation in myocardial enzymes. The patient died due to pulmonary edema eight hours after the diagnosis of myocardial infarction.