

## Summaries of Articles

### **Clinical Significance of Isovolumic Relaxation Flow in Coronary Artery Disease**

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Left ventricular isovolumic relaxation flow, generated by intracavitary pressure gradients, has been displayed by means of Doppler echocardiographic techniques. This study was undertaken to clarify the factors that effect the generation, the velocity and the direction of that flow and their relations with ventricular geometry and hemodynamic indices. 93 cases were enrolled among the patients who were hospitalized for elective coronary angiography. Wall motions during end-diastole, end-systole and end-isovolumic relaxation (IVR) were examined on 36 segments of contrast left ventriculograms taken in 30 degree RAO position.

The fixed reference point was selected as the center of gravity, since the effects of the opposing segments on this point were important for the generation of midcavitary flow. According to the direction of IVR flow and to the wall motions, the cases were divided into five groups. While the cases with apical Doppler flows were involved in group 1a (with normal coronary angiograms, n=27), group 1b (coronary patients with normal wall motions, n=27) and group 1c (coronary patients with abnormal wall motions, n=17), the others with wall motion abnormalities who had indeterminate or reverse flow directions were included into the second and third groups, respectively (group 2: n=18, group 3: n=4). The flow velocities, left ventricular shapes and motions, hemodynamic indices of the groups were scrutinized comparing with each other.

As a result, left ventricular systolic and diastolic indices were observed to be more deteriorated with the decreasing speed or with the reversing of IVR flow. The flow pattern and functional status of left ventricle were in close relation with the quantity and localization of segments which were deprived of normal motions. That was, while the relaxation impairment extended to more basal portions, the flow became less rapid, indeterminate, or even re-

verse; ejection fraction decreased;  $+dP/dt-dP/dt$  deteriorated; ventricular volumes increased and their shapes became more spherical; time constant was prolonged. So, it was deduced that the detection of midcavitary IVR flow with pulsed Doppler echocardiography may give important clues about the functional status of left ventricle in coronary artery disease.

### **Percutaneous Transluminal Dilatation for the Treatment of Renovascular Hypertension: A Clinical Follow-up Study**

*K. Adalet, M. Meriç, F. Mercanoğlu, A. Helvacı, K. Büyükköztürk, G. Ertem*

The aim of this study was to determine the long-term effects of percutaneous transluminal dilatation (PTD) on blood pressure (BP) in patients with renovascular hypertension. 19 dilatation procedures were performed in 18 (8 females, 10 males, mean age  $37\pm 10$  years; age range 21-57) patients with renovascular hypertension (14 with fibromuscular dysplasia, 3 with atherosclerotic stenosis and 1 arteritis). Renal artery stenosis was unilateral in 17 patients and bilateral 1 patient. In one patient, PTD could not be performed for technical reasons, in the remaining 18 lesions (95%), PTD was successful, as the residual stenosis was 50 percent or less determined by postdilatation angiography. BP declined to normal in all patients with successful PTD. The BP response was followed up for 4-36 months (mean 20 months) in 4 patients; recurrence of hypertension occurred, but angiography showed occlusion of the dilated artery in only 1 patient. Thus follow-up clinical success rate was 76%. We conclude that these results document the favorable medium-term effects of PTD in patients with renovascular hypertension.

### **Evaluation of "Doppler Velocity Index" in Significant Aortic Stenosis**

*H. Karpuz, X. Jeanrenaud, N. Aebischer, L. Kappenberger*

The purpose of this study procedure was to determine in significant aortic stenosis, the value of a

simple index (namely the ratio of the systolic maximal outflow tract velocity to systolic maximal aortic jet velocity) by comparing with catheterization-derived aortic valve areas calculated by the Gorlin equation. Two-dimensional and Doppler echocardiography was performed prospectively in 36 patients with aortic stenosis who underwent clinically indicated cardiac catheterization. The value  $\leq 0.22$  gave only 1 false positive result when aortic valve area was less or equal to  $1 \text{ cm}^2$  (sensitivity 94%). The results of this study show that this simple Doppler ratio is feasible easily and may be useful for identification of patients with significant aortic stenosis, especially when Doppler-derived aortic valve area calculated by the continuity equation is difficult to realise.

#### **The Effect of Aortic Regurgitation and Mitral Regurgitation on Mitral Valve Area Calculated by Pressure Half-time, in Rheumatic Mitral Stenosis**

*H.C. Elmacı, A. Işık, O. Eren, İ. Günal, H. Çelebi, C. Lüleci*

To investigate the effects of mitral regurgitation (MR) and aortic regurgitation (AR) on mitral valve area measured by Doppler, 106 patients with rheumatic mitral stenosis (RMS) were examined prospectively. Of 106 cases with RMS, 27 had AR, 13 had MR and 49 had both MR and AR, while 17 cases had pure MS. When all 106 patients were assessed, there was a moderate correlation for valve area between B-mode and Doppler ( $r=0.59$ ,  $p<0.001$ ). The best correlation was in pure RMS group ( $r=0.91$ ,  $p<0.001$ ), the weakest correlation being in RMS with MR and AR group ( $r=0.43$ ,  $p<0.01$ ). There was a good correlation in RMS with MR ( $r=0.71$ ,  $p<0.001$ ) or AR ( $r=0.60$ ,  $p<0.0001$ ) group. In conclusion, there was good correlation for valve areas between by B-mode and Doppler in pure RMS with MR and AR.

#### **Effect of Preferred Prosthetic Valve Diameter on Long-term Left Ventricular Functions in Mitral Valve Replacement**

*M. Kestelli, B.H. Şirin, R. Zeybek, N. Postacı, N. Karahan, M. Şağban*

Normally, shortening of the minor (transverse) axis

accounts for 85-90% of the left ventricular stroke volume. In this study, left ventricular functions of 27 mitral valve replacement cases treated with Medtronic-Hall prosthetic mitral valve 29 or 31 mm in diameter were evaluated in the late postoperative period (16-34th month) by two-dimensional, M-mode echocardiographic techniques. Echocardiographic and clinical findings of 12 patients treated with 29 mm and 17 patients treated with 31 mm prosthetic valves were compared in the preoperative and late postoperative period.

There was no difference between two groups preoperatively. In the late postoperative period, ejection fraction (EF) was significantly higher and endsystolic volume index (ESVI) was significantly lower in patients treated with 29 mm prosthetic valves (EF:  $68\pm7\%$  and  $60.5\pm7\%$ , ESVI:  $29.9\pm12.7$  and  $42.3\pm14.1$  in patients treated with 29 mm and 31 mm prosthetic valve, respectively,  $p<0.05$ ). Differences between enddiastolic volume index and stroke volume index were not found significant statistically. In conclusion, large diameter mitral valve may lead to deterioration in left ventricular systolic function in the late postoperative period, probably by limiting the shortening of the minor axis during systole.

#### **Longitudinal Plication Technique in the Surgical Treatment of Ebstein's Anomaly**

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In Türkiye İhtisas Hospital 57 patients with Ebstein's anomaly underwent surgical treatment from 1974 through January 1994. Of these patients 15 (26%) were treated with longitudinal plication. The mean cardiothoracic ratio was  $0.68\pm0.25$  and all patients were in sinus rhythm. There was no hospital mortality. Two patients were in low cardiac output and one had temporary atrioventricular block in the early postoperative course. The echocardiographic study showed improved results in 10 patients, mild degree tricuspid regurgitation in 4 patients and moderate regurgitation in one patient. All patients were evaluated clinically and echocardiographically. Mean follow-up period was 34.7 months. There was no late mortality. 13 patients are in functional class I and 2 patients in class II. Cardiothoracic ratio dec-

reased to  $0.60 \pm 0.15$  ( $p < 0.05$ ). The majority of patients showed normal echocardiograms. We conclude that longitudinal plication can be an alternative repair in terms of improvement of clinical status.

### Superior-septal Approach for Mitral Valve Surgery

*S. Ener, M. Yılmaz, S. Atasoy, H. Özkan, M. Cengiz*

It has been reported that a combination of superior and transatrioseptal approaches gives best exposure for mitral valve surgery. Although the effect of this technique on sinus node function has not been objectively evaluated in the long term, initial results are encouraging. We have used this "superior-septal" approach in 5 cases three of whom were in sinus rhythm and report our experience because of excellent exposure obtained in every case without complication related to technique. Mitral and tricuspid valve repair in two, and mitral valve replacement and tricuspid valve repair in three cases were performed. No complications, nor a major rhythm disturbance occurred in either the early postoperative period or during a mean 6 months of follow-up.

Superior-septal approach should be the choice especially in cases with small left atrium, in redo cases, or if any concomitant right atrial pathology exists, when a complex repair including chordae and papillary muscles is planned, and in all cases with chronic atrial fibrillation.

### Turkey's International Medical Publications 1994 and the Recent Performance in the Medical Fields and Institutions

*A. Onat*

Medical publications originating from Turkey in 1994 and included in the Science Citation Index (SCI) database were evaluated quantitatively. Of all 1789 Turkish scientific publications listed in the CD-ROM SCI compact disk, 706 were identified as medical which represented a rise by 14% over the preceding year. Turkey's share in medical publications in the world rose to 2.6 per mille. When notes, letters to the editor and meeting abstracts were excluded, 370 articles remained, references to

which are appended.

Appraisal of the individual fields during the past 4 years revealed that urology, gynecology, ophthalmology and otorhinolaryngology fared distinctly above average. Publications in cardiovascular medicine, with 25 articles in 1994 also ranked better than the general field. Among the medical institutions, Hacettepe University led ahead of Ankara and Istanbul U. medical faculties which were followed by the medical faculties of Gazi and Marmara universities.

### Reviews

#### Pacing for Hypertrophic Obstructive Cardiomyopathy: Really an alternative therapy to surgery?

*H. Karpuz, X. Jeanrenaud, L. Kappenberger*

Hypertrophic obstructive cardiomyopathy is characterized by myocardial hypertrophy (in the absence of any other cardiac or systemic abnormality capable of explaining this hypertrophy) in a patient with a nondilated left ventricle and, generally, is associated with severely limiting symptoms of dyspnea, angina and syncope related partly to obstruction of the left ventricular outflow tract. Previously, the established therapy for these patients was a trial of beta blockers, calcium channel blockers and disopyramide, followed by septal myectomy for those intolerant of or unresponsive to medications. Recent reports have documented significant symptomatic improvement in many patients with pacing, already reported in the late 60's, but only recently rediscovered.

An altered ventricular activation sequence with late septal activation is suspected to be the mechanism. In this review, results of the main studies including our own experience are summarized. Finally, we conclude that atrial synchronized ventricular pacing, together with an optimized AV interval, significantly reduces the outflow gradient and improves symptoms in patients with hypertrophic obstructive cardiomyopathy. Therefore, this method could be an alternative therapy to surgery in some cases of this disease refractory to drug therapy.

### **Emergency Coronary Revascularization After Acute Evolving Myocardial Infarction and Reperfusion Injury**

*İ. Paşaoğlu, S. Arsan*

Within the last 20 years after the beginning of emergent myocardial reperfusion for acute evolving myocardial infarction, physicians recognized that many patients developed a reperfusion injury characterized by low cardiac output. The pathogenesis of the condition in recent years has focused on the free-radical injury. The studies on this special subject were summarized in this paper. Also, timing of surgical and non-surgical interventions were discussed.

#### Case Reports

#### **A Case of Takayasu's Arteritis: Pseudoaneurysm in the Tube Graft Anastomosis of the Descending Aorta**

*S. Ener, E. Çil, K. Sağdıç, M. Türe, M. Cengiz*

Coarctation of descending thoracic aorta was found in a ten-year-old girl. Granulomatous type Takayasu arteritis was diagnosed histopathologically following surgery at which prosthetic graft interposition was performed. During the follow-up immune suppression was maintained with corticosteroids and cyclophosphamide along with antihypertensive therapy. Angiographic examination was performed three years later and revealed a 6x5 cm diatemer false aneurysm at the distal anastomotic site of prosthesis at descending thoracic aorta. Abdominal aorta was stenotic along its length and there were stenoses at both iliac arteries and at right renal artery. She underwent an operation at which the

false aneurysm of the descending aorta was repaired using 18 mm dacron tube graft with inclusion and simple clamping technique. The patient has been followed up under antihypertensive therapy.

#### **Kearns-Sayre Syndrome: A case report**

*Ç. Aydın, M. Tahtasız, S. Bayata, N. Postacı, M. Yeşil*

A case of Kearns-Sayre syndrome, a mitochondrial myopathy characterised by bilateral ptosis, chronic progressive external ophthalmoplegia, abnormal retinal pigmentation and cardiac conduction defects, was reported.

The 22-year-old female patient was admitted to the hospital because of syncopal attack due to high-degree AV block. Kearns-Sayre syndrome was diagnosed in her by clinical and laboratory examination. A permanent VVI pacemaker was implanted to the patient.

#### **A Williams-Beuren Syndrome with Critical Supravalvular Aortic Stenosis**

*E. Çil, I. Şenkaya, M. Cengiz*

A 4.5-year-old boy with the typical clinical aspects of Williams-Beuren syndrome who had severe supravalvular aortic stenosis was reported. Cardiac catheterization revealed 320 mmHg left ventricular systolic pressure and 180 mmHg supravalvular gradient. The stenosis was enlarged successfully with an oval-shaped patch by cardiopulmonary bypass technique. He was followed up for six months without any complication.