

Summaries of Articles

Investigations

Prevalance of Rheumatic Heart Disease in Rural Areas of İstanbul, Turkey

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In order to determine the prevalance of rheumatic heart disease (RHD), a survey was conducted in the Silivri, Çatalca, and Küçükçekmece districts of İstanbul. The randomly chosen sample consisted of 7265 people 7 years of age or older (3687 male and 3578 female). All subjects were screened by cardiac auscultation, and those having cardiac murmurs, pathological heart sounds, and arrhythmia were invited to our institute for further evaluation, and their conditions were diagnosed with the help of teleröntgenogram, ECG, and echocardiography.

Of the 7265 subjects surveyed, 15 had RDH and 10 had congenital heart disease (CHD). Based on these findings the prevalence of RHD was found to be 206 in 100.000 (108 in males and 307 in females), while the prevalence of CHD was observed as 138 in 100.000 (in males 54, in females 224).

These findings suggest that the prevalence of RHD has significantly diminished in the past two decades, presumably due to rises in the standart of living and of qualified medical aid.

Hospital Mortality, Postoperative Residual Defects and Complications of Patients with Tetralogy of Fallot After Total Correction

S. Karademir, S. Özkutlu, S. Özme, M. Saraçlar, S. Özer, A. Bilgiç

Residual intracardiac defects and complications may be seen at a rate of 12-13 percent in patients with tetralogy of Fallot who are operated for intracardiac repair at the early and late postoperative periods. We studied 359 patients with tetralogy of Fallot, and evaluated for hospital mortality, early and late postoperative residual intracardiac defects and complications at Pediatric Cardiology Department of

Hacettepe University Hospital between January 1984 - December 1988. The age of the patients ranged from 6 months to 21 years (mean 6.5 years). There were 25 early postoperative deaths (6.9 %). We observed that peripheral pulmonic stenosis affected hospital mortality. Early non-fatal complications occurred in 25 percent. Bleeding requiring thoracotomy (42 %) and surgically induced arrhythmia (22 %) were frequent complications.

During postoperative period, we examined 135 patients at Pediatric Cardiology Department. Among them one patient (0.7 %) had complete heart block, six patients (4.4 %) had aneurysm of right ventricular outflow tract, forty-three patients (31.8 %) had residual pulmonic stenosis with significant stenosis in five (12 %). Residual ventricular septal defect was found in 42 patients (31 %), thirty-one of them (23 %) had also pulmonic stenosis. Pulmonary valvular insufficiency was detected in 59 percent by physical examination and 70.8 percent by Doppler echocardiography. In our series, reoperation was performed in 6 patients (4.4 %), one of whom died.

Doppler Echocardiographic Evaluation of Hemodynamic Changes Following Infusion of Nitroglycerin in Cases With Patent Ductus Arteriosus and Pulmonary Hypertension

F. Öztunç, S. Özer, M. Saraçlar

Acute hemodynamic effects of infused nitroglycerin on six patients with PDA whose pulmonary artery pressure was at systemic level were investigated by continuous Doppler echocardiography. Following infusion of nitroglycerin an increase of the flow from the aorta to the pulmonary artery during diastole was detected in two cases by Doppler echocardiography. In the other three patients there was no significant change in the Doppler flow spectrum after infusion. However in the last patient an increase of blood flow from the pulmonary artery to the aorta was recorded. The former two cases with change of flow were operated on successfully for PDA; the others were accepted as inoperable.

This study showed that Doppler technique may be useful in the evaluation of pulmonary vascular reactivity to nitroglycerin. Using this method may help decide closure of PDA.

Transseptal Approach For Mitral Valve Surgery

L. Gökgöz, H. Soncul, K. Ayrançioğlu, A. Sezgin, V. Sinci, A. Yener, A. Ersöz

One of the uncommon surgical techniques used for mitral valve surgery in selected cases is transseptal exposure through a right atriotomy. In this report surgical results of fifteen patients operated with this technique with isolated or combined mitral valve disease is presented. One patient with multi-valvular disease died during surgery due to severe myocardial dysfunction. Though this method has been claimed to cause conduction system disturbances and afford insufficient exposure, our limited experience suggests that this method may be preferable in mitral and associated tricuspid lesions, cases having interatrial defects or reoperated mitral lesions.

Percutaneous Transluminal Balloon Valvotomy With "Inoue Balloon Technique"

T. Tezel, H. Tezel, T. Ulufer, A. Emre, Ö. Alpaslan, M. Yayla

During the period of September 1990-May 1991 percutaneous transluminal balloon valvotomy (BV) by using Inoue balloon technique (IBT) was applied to 20 subjects selected among patients admitted to our center with mitral stenosis.

The mean mitral valve area was found 0.98 ± 0.38 cm² before BV and 2.05 ± 1.25 cm² after BV. Maximum pressure difference across the mitral valve averaged 25.8 ± 1.60 and decreased to 10.8 ± 1.40 mmHg after BV. Average pressure difference was 12.0 ± 1.40 mmHg before BV and declined to 4.28 ± 0.70 mmHg after the procedure. Cardiac index was 2.40 ± 0.50 L/min/m² and increased to 3.20 ± 0.48 L/min/m² after BV. These differences proved to be statistically significant. Echocardiographic control by color Doppler imaging 24 or 48 hours after the procedure failed to show any change in the competence of the mitral valve.

Latissimus Dorsi Cardiomyoplasty in Right Ventricular Failure

F. Katircioğlu, S. Küçükaksu, R. Vuran, S. Küplülü, Ü. Çakır, E. Yapıcı, M. Kurtoğlu, M. Özcan, et al.

This experimental study was carried out to see whether latissimus dorsi wrapped over the right ventricle could augment the right ventricular function if ventricular function was deteriorated mechanically. Four dogs having an average pulmonary artery pressure (PAP) of 20.25 mmHg (21, 19, 22, 19 mmHg) entered this study. The average PAP fell to 6 mmHg (7, 5, 6, 6 mmHg) after creating right ventricular failure mechanically.

Latissimus dorsi which had been harvested previously was wrapped over the right ventricle and was stimulated with the use of hospital-made myostimulator asynchronously. The highest PAP was obtained when the myostimulator was adjusted to 3 V and 110 msec after stimulation of the heart and latissimus dorsi. Mean PAP rose significantly ($p < 0.002$) to 12 mmHg (13, 11, 14, 10 mmHg).

Determination of the Influence of Left Ventricular Enddiastolic Pressure on Left Ventricular Filling Parameters by Pulsed Doppler Echocardiography in Patients with Coronary Artery Disease

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The influence of left ventricular enddiastolic pressure (LVEDP) on left ventricular filling parameters was studied in two different patient groups with coronary artery disease. The first group comprised 12 male patients with LVEDP > 20 mmHg, the second group 20 male patients with LVEDP < 20 mmHg. Pulsed Doppler echocardiography was done to all patients within 24 hours of cardiac catheterisation and peak early filling velocity (E), peak late (atrial) filling velocity (A), ratio of E/A were determined. Additionally, the area under the early filling curve (A integral) and their ratios were measured. Comparison of the two groups failed to disclose any significant difference in left ventricular filling parameters (group I E/A: 0.87 ± 0.1 , group II E/A: 0.86 ± 0.08 , $p > 0.05$).

Thus it was shown that pulsed Doppler echocardiography could not provide any contribution to determine LVEDP, whether high or not. The results of this study indicate that left ventricular filling dynamics as assessed by Doppler-derived transmitral inflow velocities are not related to left ventricular filling pressures in patients with coronary artery disease.

Percutaneous Transluminal Pulmonary Valvuloplasty in Children

Ü. Aydoğan, T. Ertuğrul, T. Cantez, B. Tanman, R. Eker, A. Dindar

Percutaneous pulmonary valvuloplasty was performed in 16 patients with congenital pulmonary valve stenosis. Balloon size used in the procedure was limited with the diameter of the pulmonary annulus during the first period of the study between 1986-1988. Although the transvalve gradient decreased significantly in all except one child, it was more than 40 mmHg in four of six patients.

Oversize balloons were used for pulmonary valvuloplasty after 1988. Nine patients were treated during this period. Better results were provided with a transvalve gradient fall below 42 mmHg in all but two patients in whom right ventricular cineangiography showed infundibular spasm. These findings suggest that using oversize balloon in pulmonary valvuloplasty appears to obviate the need for surgery without major complications.

Detection of Residual Ischemia Soon After Myocardial Infarction by Dobutamine Stress Testing

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Dobutamine stress testing (DTS) and submaximal exercise testing (ET) were undertaken to induce residual ischemia in 52 patients in the second week after acute myocardial infarction (AMI). Both tests were limited by a heart rate of 120/min and were accepted positive when horizontal or down-sloping or up-sloping longer than 0.08 sec ST segment depression ≥ 1 mm was seen. Forty patients had undergone coronary angiography 3-6 months after AMI. Heart rate and double product increased significantly dur-

ing both tests. DST was positive in 21 (40 %) and ET in 16 (31 %) patients. The concordance between the two tests was 63 percent. There was no significant difference with DST in the rate of positivity between 19 patients with one-vessel disease and 21 patients with two- or three-vessel disease, and also between the anterior and the inferior AMIs. DST was stopped before 20 $\mu\text{g}/\text{kg}/\text{min}$ in 20 patients for the following reasons: significant ST depression in eight, systolic blood pressure > 200 mmHg in four, sinus tachycardia in five, frequent ventricular extrasystoles in one and chest pain in two. In conclusion, DST can be easily used in the second week after AMI without any serious complications. Its sensitivity to induce residual ischemia is high.

Review

Right Ventricular Failure in Cardiac Surgery and Intensive Care Medicine

M.S. Bilal, O. Bayındır, A. Aytaç

Under normal conditions, because the right ventricle resembles a passive conduit rather than a pump, its physiology has been studied much less extensively than that of the left ventricle. Right ventricular failure has been recently identified as an important cause of progressive deterioration in patients with cardiac or cardiopulmonary dysfunction. Because the right and the left ventricles are coupled in serially and mechanically, a perturbation in one ventricle will influence the behavior of the other. Volume loading and pharmacologic interventions may have a limited effect in patients with severe right ventricular failure.

Mechanical circulatory assistance may be required to sustain right heart function until the heart and lungs can recover. Recent advances in the technology of cardiopulmonary bypass have produced many advantages in the treatment of right ventricular failure after cardiac surgery and in critically ill patients who have not undergone cardiac surgery.

In this article, the anatomy and the physiology of the right ventricle is reviewed and recent advances in the diagnosis and the treatment of right ventricular failure is discussed.

Case Reports

Critical Aortic Stenosis with Decreased Left Ventricular Systolic Function in the Pediatric Age Group

S. Karademir, A. Bilgiç, M. Saraçlar

Critical aortic stenosis is associated with marked left ventricular myocardial hypertrophy. When the obstruction is hemodynamically significant, increased left ventricular systolic function occurs. Rarely, left ventricular systolic function can be decreased in childhood. In this paper, we described three children (aged 3 to 13) with severe aortic stenosis and heart failure. Each of the three patients had markedly reduced left ventricular systolic function as well as a dilated left ventricle with myocardial hypertrophy. The two cases who were operated showed clinical improvement.

Echocardiographic Diagnosis of Cor Triatriatum

M. Saraçlar, N. Özbarlas, S. Özkutlu, İ. Günay

Cor triatriatum is a congenital cardiac anomaly in which all pulmonary veins return to an accessory chamber. This chamber is connected to the small left atrium through an orifice. In large communications, symptoms are manifested in late adulthood. However, in patients with very small orifice, they occur in early infancy. Echocardiographic evaluation

with M-mode, two-dimensional and Doppler techniques of a 3-month-old girl who developed congestive heart failure and pulmonary venous congestion revealed the presence of cor triatriatum. Echocardiographically, right atrium, right ventricle and pulmonary arteries were dilated. Pulmonary veins were draining into an accessory chamber which was connected to a small left atrium via an orifice. Pulmonary wedge pressure was 15 mmHg. Radiopaque material injection into the pulmonary artery showed dilated pulmonary veins which drained into the accessory left atrial chamber. Although the surgical procedure was completed successfully, the patient died of cardiovascular collapse the next day.

Transcatheter Closure of Patent Ductus Arteriosus: Successful Use in Three Pediatric Patients

Ü. Aydoğan, T. Cantez, M. Meriç, A. Dindar, B. Tanman, T. Ertuğrul, R. Eker

Three patients were treated for patent ductus arteriosus with the use of the Rashkind PDA Occluder System. Successful closure was accomplished in 2 children without any complication. Residual shunt was seen in the third patient. A second occlusion device was planned to implant 6 months later in this patient. We agree with the previously made conclusion that transcatheter closure of patent ductus arteriosus is feasible in the majority of children with PDA.