

Summaries of Articles

Clinical Investigations

Sorin St. Jude Medical and CarboMedics Aortic Bileaflet Valves: An Echocardiographic Comprison

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Hemodynamic function of 23 mm sorine bileaflet aortic heart valve and matching size of St. Jude Medical and CarboMedics valves have been evaluated in 30 patients-10 patients for each valve- with transthoracic and transesophageal color Doppler echocardiography. Mean body surface area of the patients was 1.71 ± 1.1 m². Non-paired single-tailed Student's t-test have been applied for statistical analysis. There were no significant differences between the mean aortic gradients of the three valves, namely 11.2 ± 0.9 , 11.5 ± 3.3 and 12.1 ± 0.3 mmHg in sorine, St. Jude Medical and CarboMedics valves, respectively. Comparison of the effective orifice areas of the three valves showed no significant difference ($t=1.83$, $p>0.005$). Mild aortic regurgitation was detected in all patients, though in none of the cases was this clinically significant. We conclude that sorine bileaflet aortic heart valve has an acceptable hemodynamic function comparable to the St. Jude Medical and CarboMedics bileaflet aortic valves.

Intracardiac Thrombi Due to Protein C Deficiency

N.K. Tokel, S. Özkutlu, M. Saraçlar

Intracardiac thrombi are generally localized to the right side of the heart and are related to a variety of etiologic factors. Recently, intracardiac thrombi due to acquired protein-C deficiency were reported. We present 4 cases of intracardiac thrombi and 1 of cerebrovascular obstruction due to hereditary or acquired protein-C deficiency. One patient had hereditary protein-C deficiency. In four patients protein-C deficiency was caused by impaired liver function due to sepsis, malignancy and tuberculosis. During the thromboembolic events, a coagulopathy syndrome alike DIC is described. A patient with sep-

sis due to staphylococcus aureus died. In the other cases thrombi either disappeared or diminished in size.

Evolution of the Mean QRS Axis in the First Two Years of Life

G. Ahunbay, T. Onat

The dominance of right to left ventricular mass in the neonatal period which resembles to that of fetal life, reverses during the first year. The changes observed in the mean QRS axis ($\hat{a}QRS$) in the frontal plane during infancy reflects this. To investigate this, the ECG of 66 normal neonates were followed up for two years. The mean frontal $\hat{a}QRS$ shifted from $+127^\circ$ rapidly to $+79^\circ$ within two months and to $+60^\circ$ in 6 months. This inverse relationship with age was best explained by a logarithmic function ($y=58.2-29.384 \log x$; $r=-0.73$). The 3-97 percentile limits were $86-170^\circ$ for the neonates, $40-123^\circ$ at two months and $10-90^\circ$ for 9 as well as 12 month-old infants. This did not change significantly after age 1.

Growth of the Pulmonary Arteries Following Systemic-Pulmonary Shunt

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Our study included 35 patients (26 of them were tetralogy of Fallot) with cyanotic congenital heart disease who underwent systemic-pulmonary shunt operation. Changes in size of pulmonary arteries were followed by echocardiography. "z" value, indicating the difference of the right (RPA) and left (LPA) pulmonary artery diameters of these patients from the mean of the normals children with the same body surface area in terms of the standard deviation and McGoon ratios before and after the operation were calculated.

"z" value of RPA was found -1.12 ± 1.09 after the procedure while it was -2.39 ± 1.60 before the operation ($p<0.0001$). These values for LPA before and after the operation were -1.39 ± 1.44 and -0.32 ± 1.40 respectively ($p<0.005$). "z" value for the total dia-

meters of RPA and LPA was -2.10 ± 1.43 before the operation and it proved -0.86 ± 1.13 after that ($p < 0.001$). McGoon ratio was found to increase from 1.66 ± 0.34 to 2.02 ± 0.28 ($p < 0.001$). There was no difference between the pulmonary artery growth of the patients operated before and after the age of 2 years. In conclusion, our results confirmed that systemic to pulmonary shunt operations affect the growth of pulmonary arteries positively, in addition to their known effects on decreasing hypoxia in patients with cyanotic congenital heart disease with pulmonary stenosis.

Thallium Scans in Patients with Syndrome X

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Symptom-limited maximal treadmill exercise tests were performed in 20 patients (mean age 45 ± 1.7 ; 10 male and 10 female) who had typical angina pectoris, and normal coronary angiography. In all patients, the thallium scans (SPECT) were initiated in 5-8 minutes after the injection of thallium. The patients did not have any disease which could affect the thallium scan. None gave a history or showed electrocardiographic (ECG) evidence of previous myocardial infarction.

Resting electrocardiogram was normal in 7 patients, but ECG's showed ischemic changes in 9 patients, right bundle-branch block in 2 patients, frequent ventricular premature beats in 1 patient, atrial fibrillation in 1 patient. The exercise test was electrocardiographically positive (≥ 1 mm ST depression in 16 patients, 80 %) and negative in the remaining. Nineteen patients (95 %) had abnormal thallium scans and only one patient a normal thallium scan. The patient with normal scan had abnormal resting ECG and exercise test. The finding of abnormal thallium scans in two patients with a normal ECG and exercise test emphasizes the importance of thallium test in the diagnosis of syndrome X.

In conclusion, thallium defects described in 19 of 20 patients with angina and normal coronary arteriograms suggest that microvascular angina (syndrome X) may be commoner than is generally appreciated.

Dipyridamole Echocardiography vs Treadmill Exercise in Patients with Coronary Artery Disease

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The value of exercise electrocardiography is limited in detecting coronary artery disease (CAD) in some patients. Dipyridamole echocardiography (DE) is gaining popularity as being an exercise-independent test for the diagnosis of CAD. To compare their sensitivity and specificity we conducted DE and treadmill stress testing in 61 patients with angina pectoris suspected to have CAD. The two tests were performed on different days in random order. Dipyridamole was administered up to 0.9 mg/kg for ten minutes. DE testing was positive in 18 of 28 (64 %) patients with single-vessel disease and 18 of 24 (75 %) patients with multivessel disease. The overall sensitivity of DE was 69 % for the presence of CAD, while for treadmill stress testing this was 64 %. The specificity of both of the tests was 100 %. When abnormalities of DE were evaluated together with ST segment depression during dipyridamole infusion, the sensitivity of dipyridamole test increased to 80 %. No major complication occurred during either test.

Thus, DE demonstrated a similar overall sensitivity and specificity for the diagnosis of CAD as compared with treadmill testing.

The Use of Endocavitary Electrode System During Implantable Cardioverter Defibrillator Implantation

B. Akpınar, Y. Yalçınbaş, F. Wellens, P. Brugada

Implantable cardioverter defibrillators (ICD) are assuming a progressively more important role in the management of drug-refractory ventricular arrhythmias. Sixty patients received an ICD at the D.L.V. Hospital in Aalst, Belgium, between October 1990 and January 1993. The mean age was 44.4 years. The patients were evaluated in three groups. Group I consists of 21 patients in which median sternotomy with double patch combination was used. In the other two groups, an endocavitary electrode system (ES) was used as first choice.

In group II (22 patients) it was possible to use the ES alone in 11 patients, six patients required a subcutaneous patch and 5 patients required median sternotomy because of high defibrillation thresholds (DFT). In group III (17 patients), 16 patients received the ES. For 9 patients a subcutaneous patch had to be added to the system for high DFT (56 %). Sternotomy was used only for one patient requiring a coronary bypass operation in addition to ICD. Operative mortality did not exist. The overall mortality (early+late) was 6.6 %. We concluded that it was possible to avoid median sternotomy in 82 % of the patients.

Reviews

Radiofrequency Ablation of Supraventricular Tachyarrhythmias

E. Diker, P. Brugada

The goal of catheter ablation is to permanently and safely interrupt the tachycardia circuit responsible for a particular arrhythmia. It has been used as a treatment for supraventricular arrhythmias since 1982. Since radiofrequency energy was introduced for ablation, safe treatment of supraventricular tachycardia has become commonplace. The ease of control of lesion formation and the relatively small lesion size have led to the excellent safety profile observed in the clinical application of this technique.

It is now widely and successfully used to interrupt atrioventricular conduction, to modify atrioventricular function and eliminate atrioventricular nodal reentrant tachycardia without the necessity of permanent pacemaker implantation. In addition, ablation of accessory pathways can be accomplished with high degree of success. Finally, catheter ablation of supraventricular tachycardia is a well established therapeutic option in selected patients with supraventricular tachycardia refractory to pharmacologic therapy.

Radionuclide Techniques in Investigating Cardiac Functions

H.B. Sayman, K. Sönmezoglu

Radionuclide methods used in investigating cardiac functions are reviewed. The radiopharmaceuticals

that were used for this purpose are surveyed in its historical outcome. Different scintigraphic techniques such as, first-pass and equilibrium studies, applied gamma camera systems, basic principles of computers which were used in this kind of examinations are explained. Points to be taken into consideration during imaging and patient preparation are specified. Image interpretation is described; then, diseases in which radionuclide techniques may be used in their clinical diagnosis are briefly mentioned.

Ectopia Cordis Thoraco-Abdominalis with Upper Midline Defect (Cantrell-Haller-Ravitch Syndrome): Review of 76 patients including three original cases

T. Onat, E. Mindan

Including 3 original cases, 76 patients with Cantrell syndrome were evaluated and reviewed. As a result of an upper midline defect of unknown aetiology, there is an omphalocele or an epigastric hernia, rectus diastasis, a lower sternal (80 %), anterior diaphragmatic (89 %) and a pericardial (51 %) defect. The heart or a diverticulum can be palpated as an epigastric pulsating mass, because it is herniated partly through the midline defect. There is a dextro-rotation (98 %) with meso- or dextroposition of the heart. An apical, usually muscular diverticulum and congenital heart disease accompany in about 75 % of patients. Prognosis depends on the severity of the congenital heart disease. The omphalocele should be corrected surgically as soon as possible in the neonatal period. The resection of the muscular or fibromuscular diverticulum does not bring extra risk any more.

Case Reports

Culture Negative Endocarditis: Case Report of Isolating Staphylococcus Aureus L-form from Blood by Using Hypertonic Media

H. Ataoğlu, M. Özsan, M. Kahraman, E. Kütük

The case of a patient with bacterial endocarditis is reported in whom long-term treatment with cell-wall effective antibiotic, the routine blood cultures being negative, finally revealed Staphylococcus aureus L-form by using hypertonic media.

Rupture of Posterior Wall of Left Ventricle After Mitral Valve Replacement

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During a 41-month period, 174 patients underwent mitral valve replacement at İzmir Atatürk State Hospital. There were 10 hospital deaths, 3 of which were due to ventricular rupture. In the 2 patients who died of ventricular it was observed rupture

while that the ventricular tears were located in the atrioventricular groove, in the remaining patient the tear was located between the atrioventricular groove and the papillary muscle. Immediate or delayed left ventricular rupture has become a major cause of death following mitral valve replacement. With preservation of the posterior chorda tendinea, the risk of ventricular rupture after mitral valve replacement should be reduced.