

Summaries of Articles

Clinical Investigations

AICD in the Treatment of Patients with Ventricular Tachycardia and Fibrillation

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Between June 1990 and December 1991, 21 out of 64 patients received AICD (automatic implantable cardioverter defibrillator) for sustained ventricular tachycardia and/or ventricular fibrillation. There were 16 male and 5 female patients. Ages ranged between 18 and 87, with a mean age of 63 ± 3 .

The indication for AICD implantation was made according to the "decision tree" developed by Brugada et al. According to this, for patients whose risk for sudden cardiac death in the next 2 years was calculated as less than 10 %, no additional therapy was added to the conventional medical therapy.

The patients with a calculated risk of more than 10 % received AICD in addition to medical therapy. In the medical therapy group (Group I), no patients were lost at the end of 6 months. In the AICD group (Group II), the peroperative mortality was zero and two patients were lost in the late postoperative period. At the end of six months, 22 shocks were detected in six patients in this group.

Distribution of Coronary Artery Lesions in Chronic Mitral Valve Regurgitation Due to Ischemic Papillary Muscle Dysfunction

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Patients with coronary artery disease who had mitral regurgitation due to ischemic papillary muscle dysfunction were retrospectively evaluated in this study and a relation was sought between the distribution of coronary artery lesions and mitral regurgitation. Cases with other probable causes of mitral regurgitation were excluded.

Among 4839 patients with coronary artery disease (stenosis of 50 % or more), 65 had both coronary disease and mitral regurgitation. The control group comprised the remaining 4774 patients who had coronary artery disease but no mitral regurgitation.

In both groups the distribution of coronary artery lesions were examined. Mitral regurgitation consequent to papillary muscle dysfunction was not infrequently observed in single or multiple-vessel disease or in any combination of vessel involvement.

However, triple-vessel disease tended to be more commonly associated ($p > 0.05$) and in cases with both right coronary artery and left circumflex artery lesions, the incidence of mitral regurgitation was significantly higher than in cases with single or triple vessel disease or another combination of two-vessel disease ($p < 0.05$).

Follow-Up of Patients Having Had Replacement with Björk-Shiley and Medtronic-Hall Prostheses

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This study comprises patients operated at the Gazi University, Thoracic and Cardiovascular Surgery Department, between April 1987 and April 1991. 153 Björk-Shiley prosthetic valves were used in 140 patients and 168 Medtronic-Hall prosthetic valves in 130 patients. Twenty-one valves were replaced in the aortic position, 106 valves in the mitral position, and 13 patients had mitral+aortic valve replacement with the Björk-Shiley prosthesis.

The mean follow-up was 40.3 months (16-54) and the mean age was 35.1 in this group. Thirty-two valves were used in the aortic position, 60 valves in the mitral position, and 38 patients had mitral+aortic valve replacement with the Medtronic-Hall prosthesis. The mean follow-up was 19.6 months (8-37) and the mean age was 33.5 years.

No significant differences existed in the early or late mortality, survival rates and complication-free

survival rates between patients having had replacement of the two types of prosthetic valves. Hospital mortality, postoperative annual mortality and complication rate during the first month were 4.2 %, 3.9 % and 9.3 %, respectively, for the B-S group, while these were 3.8 %, 4.4 % and 6.2 %, respectively, in the M-H group.

Effects of Warm Cardioplegic Induction on Postoperative Left Ventricular Performance

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A prospective study was performed in two groups of patients, to check the effectiveness of warm and cold cardioplegic induction in myocardial protection.

Each group comprised 15 cases, and we used blood cardioplegia as a cardioplegic solution. In the first group warm induction, cold maintenance and terminal warm cardioplegia was used. In the second group, the only difference was cold cardioplegic induction.

Cardiac index, pulmonary artery pressure, left ventricular stroke work index, pulmonary capillary wedge pressure measurements were done just after the operation, first postoperative day and the same day after volume loading. Findings were compared statistically by using Student t- test.

Cardiac index and stroke work indices of patients in group 1 were found higher ($p<0.01$) than the patients in group 2. Furthermore, pulmonary artery pressures in group 1 were found lower ($p<0.01$). No patients in both groups had shown findings of postoperative myocardial infarction or low cardiac output.

Thus in patients in whom warm induction was used, the myocardium appeared to be better protected and its response to volume loading was better. This confirms that cardioplegia with warm induction is superior to cardioplegia with cold induction in myocardial protection.

Hemodynamic Evaluation of Continuous Normothermic Aerobic Blood Cardioplegia

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Continuous normothermic blood cardioplegia is a new technic of myocardial preservation during cardiac operations. This is stated to permit for aerobic arrest and to overcome many of the disadvantages of ischemic hypothermia including detrimental effects on enzymatic functions and cellular integrity. In the period between September 1991 and November 1991, 10 patients who underwent coronary artery bypass grafting were operated with this technic. Nine of them were male, 1 was female and their ages ranged from 34 to 69 (mean 53 ± 10). At the operation 2 to 4 distal anastomoses were performed (2.7 ± 0.8 distal anastomoses per patient).

The heart was maintained chemically arrested at 37°C throughout the operative procedure. Blood cardioplegia was administered at 37°C via a system which mixes and warms a hyperkalemic crystalloid solution with oxygenated blood in a 1:4 dilution. After the initial infusion of 1500 ml of high-potassium warm-blood cardioplegia, the low-potassium diluted blood was continuously perfused. All of the patients were converted to normal sinus rhythm spontaneously after removal of the aortic crossclamp.

There was no perioperative myocardial infarction, no need for inotropic support or IABP. Cardiac index 24 hours after bypass was significantly higher (2.61 ± 0.49 versus 3.40 ± 0.61 lt/mn/m², $p<0.02$) than before bypass and there was no morbidity or mortality. We can thus confirm that this is a safe alternative method for myocardial protection.

Intraoperative Applications of Transesophageal Echocardiography

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Twelve patients consisting of 7 women and 5 men were studied by transeophageal echocardiography (TEE). Age of the patients ranged between 26 to 60. TEE was performed in 3 patients during coronary artery bypass grafting (CABG), in 4 patients during

valve reconstruction and in 5 patients during valve replacement.

The probe was placed in the esophagus approximately 30-40 cm down from the teeth, following induction of general anesthesia and endotracheal intubation. Images were obtained by using a Hewlett Packard (HP) 5mHz esophageal probe connected to HP sonos 1000 echocardiography system. Initial images were obtained during surgery and after the patient was removed from cardiopulmonary bypass (CPB). The prebypass findings were helpful for the interpretation of the subsequent postbypass study. TEE yielded more detailed information about native valve morphology and prosthetic valve, the presence of left atrial and appendage thrombi and residual problems following surgery.

TEE with high resolution transducer provided confirmation of structural information preoperatively and was helpful for the surgeon in postoperative assessment of surgical results and ventricular function. It is concluded that routine application of TEE during operation is useful because of its contribution to the course and result of the surgical procedure.

Transarterial Retrograde Mitral Balloon Valvotomy

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Since studies on mitral balloon valvotomy without septostomy have been rare, we are reporting our experience on 6 patients with valvotomy which was performed utilizing the way of left atrial catheterization.

The mean mitral valve area was increased from 1.1 cm² to 1.64 cm. The pressure gradient across the mitral valve was decreased from 9.3 mmHg to 3.3 mmHg. Minimal mitral insufficiency occurred in one patient but in two cases there was (+++) and (++++) mitral insufficiency because of rupture of the chordae. Valve replacement had to be performed in both cases, one immediately postoperatively and one later on.

It is concluded that although the risks of septosto-

my is eliminated and the procedure shortened, transarterial retrograde valvotomy has a high possibility of causing severe mitral insufficiency by damaging the subvalvular apparatus and that this method should not constitute an alternative for the classical transeptal method.

Evaluation of Left-Right Shunting After Balloon Mitral Valvotomy: A Transoesophageal Echocardiographic Study

A. Narin, A. Emre, İ. Öztekin, G. Tayyareci

The aim of the present study was to assess the incidence and long-term evaluation of left-to-right atrial shunt after balloon mitral valvotomy (BMV). We examined 39 patients, by using transoesophageal echocardiography (TEE). TEE examination was performed in 9 of the 39 patients after 1-3 days (I. group), in 10 of the 39 patients after 1-1.5 month (II. group) and the remainder after 4-32 (mean 18) months (last group) after BMV. All first group patients had atrial septal defects (ASD). In the second group, 9 of 10 patients (90 %) showed left-to-right shunts.

ASD sizes in this group were smaller than in the first group of patients. In the last group, ASD was detected in 2 of 20 patients (10 %). We obtained minimal left-to-right shunt flow in 5 of 20 patients (25 %) despite an apparently intact atrial septum. By using transthoracic echocardiography (TTE), we detected left-to-right shunting in 35 percent of patients showing ASD.

Our study suggests that (1) TEE is a more reliable method to obtain left-to-right shunting; (2) ASD size decreases over time and disappears within generally 4-6 months after BMV in most patients.

Low Predictive Value of Early Exercise Testing for Restenosis Following Successful PTCA

V. Aytekin, M. Öztürk, S. Öztürk, C. Demiroğlu

This study was designed to evaluate the predictive value of early exercise testing for the development of restenosis after successful PTCA. Thirty patients who had no ST segment changes (group A) and 20 patients who had ischemic ST segment de-

pression more than 1 mm (group B) on treadmill exercise testing performed between the 2nd and 15 th days after PTCA were compared regarding some clinical and coronary angiographic findings.

There were no significant difference with respect to age, sex, the history of stable, unstable angina, previous myocardial infarction, hypertension, diabetes, smoking, heredity, total cholesterol, HDL cholesterol and triglyceride levels between these two groups. Nor were there significant differences in the location and morphologic aspects of the stenotic lesions.

Angiographic restenosis was detected in 7 (23 %) patients in group A and in 9 (45 %) patients in group B (p:ns), in 8 (24 %) of 38 lesions in group A and in 13 (48 %) of 27 lesions in group B (p<0.05).

The sensitivity, specificity, positive and negative predictive value of early exercise testing for predicting angiographic restenosis were found to be 56 %, 67 %, 45 % and 76 %, respectively. Though restenosis is more common among patients who have a positive early exercise test, this finding's predictive value for restenosis is too low to have a practical value.

Review

Non-progression or Regression of Coronary Atherosclerosis: A review of experimental studies and angiographic trials

A. Onat

It is known that in untreated atherosclerosis which generally has a progressive course, luminal narrowing by more than 60 % or more by atheromatous plaques is a slow process often lasting decades, whereas rapid thrombotic phenomena may superimpose on this. The present review focuses on the processes of progression and regression only of the atheromatous narrowing. Results obtained from animal experiments and from intervention trials during the past decade using computerized quantitative angiocardiology are discussed.

The probable anatomic substrate underlying angiographic regression is dealt with. Furthermore, detection of new lesions by quantitative angiography as well as factors influencing new lesion formation were reviewed. Angiographic trials showed that regression of lesions occurred only in studies in which serum cholesterol levels were reduced, accompanied in some by a rise in HDL-cholesterol. The hypothesis that progression of atherosclerosis is best correlated with LDL-cholesterol, while regression is best related to a rise in HDL-cholesterol is considered.