Summaries of Articles

Significance of Inferior Abnormal Q-Waves in Predicting Inferior Wall Motion Abnormalities

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Five-hundred consecutive patients were evaluated to determine the value of inferior pathologic Q waves in predicting the presence and severity of inferior wall motion abnormalities (IWMA) defined by ventriculography. An abnormal Q-wave was defined as one lasting longer than 0.03 sec and having an amplitude greater than a quarter of the R-wave. IWMA were present in 135 patients. Abnormal Q waves were absent in inferior leads in 52 patients (39 %) with IWMA. Among 122 patients with pathological Q waves, IWMA was present in 83 (68 %). Abnormal Q wave seen in only one lead was not predictive of IWMA, however, abnormal Q waves seen in all three leads were associated frequently (44 %) with IWMA. No significant association was found between the degree of IWMA and the number of inferior leads with Q waves.

Laser Angioplasty in Total Coronary Occlusions

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In 41 patients (pts) with class II and III angina pectoris and total coronary artery occlusion, laser PTCA was considered at the Turkey's Advanced Specialty Hospital in Ankara. The obstructed artery was left anterior descending in 15 pts, circumflex in 11 pts and the right coronary artery in 15 pts. Conventional PTCA utilizing floopy, intermediate, standard and magnum guide-wires preceded the procedure and proved successful in 23 pts.

Occlusions not opened up by the conventional method in 18 pts (44 %) were subjected to laser angioplasty by Argon laser (Lastac System II). The procedure was abandoned in 6 pts due to lack of ascertainment of the Lastac balloon fiber being centralized. Of the 12 pts in whom laser angioplasty was carried out, the occlusion was opened in 7 and failed to be opened in the remaining five pts. This raised the overall angioplasty success ratio in total occlusions to 73 %. In conclusion, careful selection and application of laser coronary angioplasty is a useful and valuable method which is particularly indicated in total occlusions of less than 6 months' duration.

The Rate of Atrial Fibrillation Development in Patients with Cardiac Pacemakers

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The rate of atrial fibrillation development was evaluated retrospectively in 167 patients (pts) who previously were in sinus rhythm, were capable of restoring their own rhythm when the pacemaker was switched off, and had no history of atrial fibrillation. Cardic pacemakers were implanted because of sick sinus syndrome (SSS) in 79 patients while the other 88 patients had various indications to be paced (third-degree AV block 68, second-degree Mobitz type II AV block 12, bifascicular bundle block 5, hypersensitive carotid sinus syndrome 3). The modes of pacemakers were VVI in 129 pts, AAI in 6 pts and DDD in 32 pts. Atrial fibrillation developed in 43/167 (26 %) pts during follow-up. The number of pts who experienced atrial fibrillation during follow-up were 40/129 (31 %) for VVI pacing and 3/38 (8 %) for AAI/DDD pacing ($p<0.05$). Among patients with SSS, 26/79 (33 %) pts had atrial fibrillation while this number was 17/88 (19 %) among pts paced for other indications ($p<0.05$). In VVI pacing, 24/57 (42 %) pts with SSS had atrial fibrillation and in AAI/DDD pacing this number was 2/22 (9 %), and the difference was significant ($p<0.05$). Atrial fibrillation developed in 16/72 (22 %) pts with VVI pacing and 1/16 (6 %) pts with DDD pacing who were paced for indications other then SSS, disclosing again a significant difference ($p<0.05$).

In conclusion, atrial fibrillation developed more frequently in pts with VVI pacemakers. We observed that the rate of atrial fibrillation development increases in pts with SSS. As the adverse effects of atrial fibrillation on quality of life and mortality rates are taken into consideration, we believe that it is rational to prefer pacing modes that provide AV synchrony especially in pts with SSS.

The Hemodynamic Effects of Prostaglandin E1 in Patients with Pulmonary Hypertension due to Mitral Stenosis: A Dose-compared Study

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The aim of this study was to evaluate the hemodynamic effects of prostaglandin E1 (PGE1) in patients with pulmonary hypertension due to mitral stenosis. 30 patients with pulmonary artery systolic pressures above 30 mmHg, were divided into two groups. In group I (n:15) and in group II (n:15) PGE1 was administered with a dose of 20 ng/kg/min and 40 ng/kg/min, respectively.

Hemodynamic measurements were recorded before and after PGE1 infusion. Statistically significant changes ($p<0.05$) were observed by PGE1 infusion in mean values with respect to following parameters: mean arterial pressure (MAP) 85.7 to 80 mmHg in group II, mean pulmonary artery pressure 43 to 37 mmHg in group I and 45 to 33 mmHg in group II, central venous pressure 7.5 to 6.7 mmHg in group II, pulmonary vascular resistance 507 to 422 dyn. sec.cm^{-5} in group I and 467 to 268 dyn.sec.cm^{-5} in in group II, pulmonary capillary wedge pressure 23 to 20 mmHg in group I and 24 to 19 mmHg in group II, systemic vascular resistance 2049 to 1967 dyn. sec.cm^{-5} in group I and 1778 to 1452 dyn.sec.cm^{-5} in group II, right ventricle stroke work index 10.6 to 9.2 gm/m^2 in group I and 11.3 to 8.7 gm/m^2 in group II, cardiac output 3.3 to 3.4 l/min in group I and 3.6 to 4.1 l/min in group II, cardiac index 2.19 to 2.25 l/min/m^2 in group I and 2.39 to 2.69 l/min/m^2 in group II, stroke volume 31.7 to 32.2 ml in group I and 33.8 to 37.1 l/ml in group II. These findings were more apparent in group II patients.

We concluded that PGE1 is a potent pulmonary vasodilatator improving the right ventricular functions by decreasing the right ventricular afterload in patients with mitral stenosis. It has a dose-related effect; the appropriate dose differs in patients and should be adapted by the decrease in MAP.

Assessment of the Severity of Valvular Pulmonary Stenosis from ECG at Ages Greater and Less than One Year

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The correlation between 22 ECG parameters and the systolic gradient in valvular pulmonary stenosis (PS) was studient in 126 patients at age >1 (7.0±4.2) and in 31 infants ≤1 year (0.43±0.27).

The degree of sensitivity and specificity of the ECG criteria were calculated in regard to age and grade of severity of PS where the latter was mostly determined by echocardiography. The correlations of the ECG variables were much lower in patients ≤1 year and they were insignificant in most variables except R wave amplitude and R/S ratio in V1.

On the other hand, in the group >1 year of age all were significant except R amplitude and R/S ratio in V5. The amplitude of R wave in V1 correlated highest with the systolic gradient and it could be estimated with a standard error of ±29 mmHg. Although most ECG variables were correlated significantly with the degree of the systolic gradient, except S wave in V1, they did not contribute to the information brought forward by the R amplitude in V1.

The bifactorial regression for the estimation of pulmonary systolic gradient from RV1 and SV1 showed a standard error of 27 mmHg. The estimates belonging to the 3 severity grades of PS showed concordance in 66 %, underestimation in 11 % and overestimation in 23 %.

In the age group ≤1 year, however, the discordance was 55 %. It is therefore concluded that the severity grade of the valvular PS cannot be estimated from the ECG at age ≤1 year in whom severe cases are underestimated and mild cases overestimated due to the physiologic right ventricular hypertrophy.

Catheterizing Modified Blalock-Taussig Shunts: Technique and Results

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Measurement of pulmonary artery (PA) size and pressure is essential for indication of permanent palliation of definitive surgery in complex lesions with pulmonary stenosis (PS) or atresia, previously palliated with modified Blalock-Taussing (MBT) shunts. From February 1992 to October 1993 with the aid of Judkins right coronary artery catheter (JR4) and

0.038 mm J curve guide-wire, we have achieved easy access to the PA through a MBT shunt in 11 consecutive patients aged 4 to 22 years (mean 8.18±5.2), weight 14 to 45 kg (mean 20.5±8.9). The patients' diagnoses were tricuspid atresia with pulmonary stenosis or pulmonary atresia (n=4), dextrocardia and complete atrio-ventricular (A-V) canal defect with PS (n=3), single ventricle with pulmonary atresia (n=1), left A-V valve atresia and malposition of the great arteries with PS (n=1), dextrocardia and right A-V valve atresia and ventricular septal defect with pulmonary atresia (n=1), and transposition of the great arteries with a ventricular septal defect and pulmonary stenosis (n=1). No complications, e.g., worsening hypoxia or dysrhythmia occurred except 1 femoral artery thrombosis. As a conclusion: access to pulmonary artery through a MBT shunt is easy, safe and effective for the visualisation of pulmonary arterial tree and measurement of the pulmonary arterial pressure.

Case Reports

Technique for Closure of the Small Patent Ductus Arteriosus Using the Rashkind Occluder
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Percutaneous transcatheter closure of patent ductus arteriosus has become a clinically viable procedure in childhood due to the pioneering work of Rashkind and Mullins. This paper presents the modification of the technique to accomplish transcatheter closure in a patent ductus arteriosus 2 mm in diameter.

Coronary Artery Disease in Monozygotic Twins
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Two patients (monozygotic twin brothers) with premature coronary artery disease were reported so as to emphasize and review the importance of known and unknown hereditary risk factors. There were two risk factors (family history and smoking) in both patients. HDL cholesterol and apolipoprotein A levels were borderline low and apo B borderline high. One of them had undergone coronary bypass surgery two years after myocardial infarction, and the other had become symptomatic with a similar location of the lesion on LAD artery. Elective, successful PTCA procedure resulted in early (15th day) restenosis whereupon elective surgical revascularisation was performed. These cases, along with the 12 pairs of twins with CAD reported previously, suggest that the asymptomatic twin should be carefully followed-up when the co-twin has documented coronary artery disease.

Reviews

Mitral Valve Prolapse Syndrome
N. Özcan, S. Pay, B. Koç

The mitral valve prolapse syndrome (MVPS), a common cardiac disorder, is the name given to the heart valve abnormality described by Barlow over twenty years ago. If echocardiographic rather than clinical criteria are used as the basis of diagnosis, about 5 % of a normal population and up to 15 % of young normal females would be found to have this lesion. The present article reviews some of the current information related to MVPS and its treatment.

Mitral Valve Reserve Capacity in Mitral Stenosis and Clinical Implications
T. Okay

In normal subjects, the increased mitral valve flow with exercise is accomplished by an increase in maximum diastolic mitral valve orifice (mitral valve reserve capacity). It is generally accepted that in rheumatic mitral stenosis, the stenotic mitral valve orifice is fixed in a maximally opened position in diastole with no reserve capacity. However, as shown recently, patients with milder degrees of mitral stenosis may have some residual reserve capacity allowing mitral valve area to increase during exercise. Patients wih milder mitral stenosis and more pliable mitral leaflets (as evaluated by echo scoring) can increase their mitral valve area significantly on supine exercise as compared to those with more severe degree of valvular narrowing.

On the other hand, the restoration of mitral valve reserve capacity after mitral balloon valvulotomy may be important in increasing the mitral valve flow without further elevation of transmitral pressure gradient, thereby contributing to the symptomatic improvement of the patients. Moreover, this phenome-

non may have importance in defining the restenosis after mitral balloon valvulotomy. As we have reported previously, the widely used defition of restenosis based on rest hemodynamics may not correlate with the symptomatic status during follow-up. Therefore, in evaluating the long term results of mitral valvulotomy, determination of the hemodynamic response to dobutamine may be more clinically relevant than an absolute cut-off value for mitral valve area.

Normothermic Blood Cardioplegia

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Hypothermia is widely acknowledged to be the fundamental component of myocardial protection during cardiac operations. Although it prolongs the period of number of major disadvantages, including its detrimental effects on enzymatic function, energy generation, and cellular integrity.

Continuous warm blood cardioplegia has been used as an alternative to traditional cold intermittent infusion techniques during cardiac surgery. Warm oxygenated blood cardioplegia has certain theoretical advantages, such as continuously supplying oxygen and substrates to the arrested heart while avoiding the side effects of hypothermia.

Recent clinical reports have suggested that continuous delivery of oxygeneted warm blood cardioplegia through the coronary veins produces good myocardial preservation during aortic cross clamping. In this report, we discuss benefits and risks of retrograde continuous warm blood cardioplegia.