

Summaries of Articles

Doppler Tissue Imaging: A Noninvasive Technique for Estimation of Left Ventricular End-diastolic Pressure

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Recent observations suggest that the early diastolic velocity of the mitral annulus (Ea) is an index of left ventricular relaxation that is less influenced by left ventricular filling pressure. This study sought to determine the applicability of the combined information obtained from transmitral Doppler flow and Doppler tissue imaging (DTI) for estimating left ventricular end-diastolic pressure (LVEDP). We included 85 patients who had coronary artery disease (CAD) in coronary angiography. Standard Doppler variables (E velocity, A velocity, E/A ratio, deceleration time and DTI variables (Early diastolic mitral annulus velocity [Ea], late diastolic velocity [Aa], and ratio of trans-mitral E velocity to mitral annulus Ea velocity) were assessed for their accuracy in predicting LVEDP>15mmHg. The ratio of E velocity to the other variables derived from the diastolic annular velocity did not provide better result than E/Ea. Significant correlation was observed between the E/Ea ratio and LVEDP ($r=0.62$ $p<0.01$) An E/Ea >10 detected LVEDP>15 mmHg, with sensitivity of 85% and a specificity of 77%. Conclusion: Mitral E velocity, corrected for the influence of relaxation (i.e E/ Ea ratio), relates to LVEDP in CAD patients and may be used to estimate LV filling pressure.

Key words: Tissue-Doppler, left ventricular enddiastolic pressure, mitral E velocity

Intermediate Coronary Artery Stenoses: An Intravascular Ultrasound Study

B. Berkalp

In symptomatic coronary patients angiographically intermediate lesions are commonly observed, and the decision to revascularize requires further evaluation of these stenoses. Intravascular ultrasound imaging is one of the available techniques to solve this problem. In 50 lesions in which quantitative coronary angiography showed

49,0 ± 6,5 percent diameter stenosis, the quantitative and qualitative lesion assessments were performed using intravascular ultrasound. Percent cross-sectional area stenoses changed from 33% to 87%, and mean plaque burden was 67,0 ± 12,4%. As 18 (36%) lesions had plaque burden between 50% and 70%, 26 (52%) lesions showed plaque burden over 70%. The lesion lumen cross-sectional area <4 mm² was found in 30 (60%) stenoses. Lower plaque eccentricity index (0.4 ± 0,3) defined the eccentric plaque morphology of these lesions. In 25 (50%) lesions the existence of a disease-free arc with high eccentricity of the lumen was conspicuous. Soft and mixed plaques were frequently seen. Calcification was observed in 16%. Atherosclerosis was not found in 17 (34%) reference segments, but plaque burden was >40% in 14 (28%) reference segments. Ineffective arterial remodeling was found in 14 (28%) lesions. Compensatory dilation was revealed in 15 (30%). Plaque burden was lower in lesions with inadequate arterial remodeling than in lesions with compensatory dilation. In comparison with the measurements of quantitative coronary angiography, intravascular ultrasound findings showed higher minimal lumen diameters (2,1 ± 0,5 mm, 1,8 ± 0,6 mm, $p<0,01$), despite similar reference segments diameters. In conclusion, intravascular ultrasound is a valuable technique in the assessment of the intermediate angiographic lesions and is helpful to plan the further evaluation and treatment strategy.

Key words: intermediate lesion, intravascular ultrasound, coronary angiography

Occlusion of the Septal Artery in Patients with Hypertrophic Obstructive Cardiomyopathy: Early and Midterm Results

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A nonsurgical technique to achieve a reduction in septal mass by producing septal infarction using balloon catheter techniques has been described. We have treated 13 patients by this novel technique and are presenting the results of the procedure in this first series of patients in terms of the early and midterm period. Between November 1997 and May

1999, 13 patients had evidence of HOCM by echocardiography and symptoms of angina and dyspnea despite optimal medical treatment (Class III). The mean age of the patients was 55 ± 12 years. The mean resting gradient in LVOT decreased from 42 ± 15 mmHg to 9 ± 7 mmHg. Mean follow-up was 10.5 months. SPECT, done 5 to 7 days after the procedure showed that the mean septal perfusion defect size involved 6.2 ± 2.6 % of the left ventricle. The mean septal thickness decreased from 2.6 ± 0.4 mm to 1.9 ± 0.5 mm at one month. Functional class improved in all the patients (eleven were in Class I, two in Class II). A complete AV block occurred in two patients, which made implantation of permanent pacemaker necessary. Induced septal infarction produces significant hemodynamic improvement during medium-term follow-up, and is associated with considerable improvement in symptoms and quality of life. Since the long-term effects of these procedures are unknown, patients with severe symptoms should be candidates.

Key words: Hypertrophic cardiomyopathy, septal coronary artery occlusion, balloon catheter technique

In-hospital Results of Primary Stenting in Acute Myocardial Infarction

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High reocclusion and restenosis rates with primary angioplasty (PTCA) had evoked the idea of primary stenting in acute myocardial infarction (AMI). In this study we evaluated the efficacy and safety of primary stenting in AMI. Study group consisted of 82 patients who underwent primary PTCA between October 1995 and October 1998 and had suboptimal or failed outcome. Acute occlusion or an threatened occlusion or a $\geq 30\%$ residual narrowing after PTCA was an indication for primary stenting. 85.3% of the cases were male and the mean age was 53.2 ± 7.78 . Chest pain to admission time was 197.5 ± 44.9 min, admission to femoral puncture time was 23.5 ± 6.11 , admission to reperfusion time was 45.3 ± 29.1 min and duration of stay in catheterization laboratory was 52.2 ± 25.4 min. Two stents were deployed in 2 cases and one stent in the remaining patients. High pressure (15.5 ± 3.01 mmHg) was used for stent

deployment in all cases. Reference vessel size was 3.12 ± 0.21 mm, gained vessel size was 3.04 ± 0.22 mm and the residual stenosis was 8.3 ± 4.3 %. TIMI 3 flow was achieved in 81 cases. One patient died who underwent emergency CABG operation due to acute instent thrombosis. Recurrent ischemia or reinfarction was not recorded during the inhospital period. Two cases required blood transfusion due to the groin hematoma at the femoral access site. At the predischarge catheterization no restenosis or reocclusion was recorded. Left ventricular mean ejection fraction was 57.2 ± 9.9 %. In conclusion, primary stenting is a safe procedure with optimal angiographic outcome in AMI. Outcome of primary PTCA was improved and hospital stay period was decreased due to the lower reocclusion, reinfarction and recurrent ischemia rates.

Key words: Acute myocardial infarction, primary angioplasty, coronary stent

Value of Gating of Tc-99m Sestamibi SPECT Imaging in Distinguishing Ischemic from Nonischemic Dilated Cardiomyopathy

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Limited data exist on whether evaluation of segmental wall motion in addition to myocardial perfusion provides incremental information for identification of ischemic (IC) from nonischemic (NIC) dilated cardiomyopathy. Thus, we performed exercise Tc-99m sestamibi gated SPECT imaging on 36 patients with ejection fraction $< 35\%$. Patients having ≥ 1 epicardial coronary artery with $\geq 70\%$ reduction of luminal diameter at angiography constituted the ischemic cardiomyopathy group (group1, n=20). Patients with no significant coronary artery disease constituted the nonischemic group (group2, n=16). Perfusion was graded on a 5-point scale (0=normal; 4=absent uptake) and wall motion on a 4-point scale (0=akinesia/dyskinesia, 3=normal) using the 20-segment model. The summed stress score (SSS) was defined as the sum of the 20 segmental scores. By univariate analysis, variables which were found to be significantly different between IC and NIC were: SSS (25.5 ± 7.6 vs 7.68 ± 1.58 , $p < 0.001$), summed reversibility score (SRS) (10.9 ± 7.9 vs 0.25 ± 0.68 , $p < 0.001$), wall motion score (WMS) (39.9 ± 6.87 vs

51.6±1.96, p<0.001), SSS/WMS ratio (0.68±0.30 vs 0.15±0.03, p<0.001) and presence of LV dilatation at stress (p=0.004) and multivessel pattern (p=0.0001). Logistic regression analysis revealed only three variables as independent predictors of IC as opposed to NIC:SSS (p<0.0001), WMS (p<0.0001) and SSS/WMS ratio (p<0.0001). These results suggest that the addition of electrocardiographically-gated technetium-99m sestamibi images to the reading of stress and rest perfusion images provides incremental power in identifying patients with IC vs NIC.

Key words: Dilated cardiomyopathy, ischemic cardiomyopathy, SPECT

Comparison of Coronary Stenting with Angioplasty in Diabetic Patients

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Diabetes mellitus (DM) is a major risk factor for restenosis after coronary balloon angioplasty (PTCA). Recent studies have shown that coronary stenting significantly reduces restenosis compared with PTCA alone. However, still limited data exist on the effect of coronary stenting in diabetic patients. Therefore, we designed this study to compare the results of intracoronary stenting and PTCA in native coronary vessels with diabetic patients in our clinic. Sixty-three (15.6%) of 404 patients who underwent PTCA had DM (PTCA group); 36 (19.5 %) of 185 who underwent intracoronary stent had DM. There were no significant differences in the baseline clinical and angiographic characteristics between the coronary stent and PTCA group. In the early period, there were no statistically significant differences in procedural and clinical success and in-hospital major complications between the coronary stent and PTCA group. During 8 months clinical follow-up, in the PTCA group incidence of cardiac events was significantly higher in the than intracoronary stent group (38% vs 13.9% p=0.02). Rates of mortality (3.2% vs 2.8%), nonfatal AMI (3.2% vs 5.6%) were similar in both groups. Rates of revascularization (31.7 vs 5.6% p=0.005) were higher in the PTCA group. In conclusion, DM was found to be a risk

factor for untoward cardiac events indicating restenosis at 8 months' follow-up of patients who underwent PTCA alone. However, it was not found to be a risk factor in patients with intracoronary stenting. Thus, intracoronary stent implantation appeared to be more suitable than PTCA in diabetic patients.

Key words: Diabetes mellitus, coronary angioplasty, coronary stenting

Plasma Fibrinogen Levels and Correlates Among Turkish Adults

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Fibrinogen values were measured and associations of fibrinogen levels with several coronary risk factors were investigated in the 1599 men and women of the 2575 adults visited in the third follow-up of the TEKHARF cohort. Plasma fibrinogen was measured by Behring turbidometry and validation of the results in a sample were done in a reference laboratory. Median age was 46 for men and 48 for women, respectively. Fibrinogen concentrations were independent of age in women but increased with age in men (0.1 g/L for every 5 years; r=0.29, p<0.001).

Multivariate analysis indicated smoking as an independent significant determinant for fibrinogen levels in both sexes. Waist circumference, triglycerides, and HDL-cholesterol (HDL-C) in women and waist/hip ratio in men were significant markers of fibrinogen levels. HDL-C was a borderline significant marker in men. In univariate analysis total cholesterol and physical inactivity showed weak direct significant associations with fibrinogen in both sexes. Body mass index, systolic and diastolic blood pressures in women and LDL-C in men showed weak but significant associations with fibrinogen levels. LDL-C/HDL-C displayed an inverse association with fibrinogen in women. A direct association between HDL-C and fibrinogen concentrations was again observed and was difficult to explain.

Similar or lightly higher fibrinogen levels in Turkish adults compared to other populations are thought to contribute to the coronary heart disease risk in our population.

Efficacy and Safety of Fenofibrate in Primary Hyperlipidemic Subjects

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In order to evaluate the efficacy and safety of fenofibrate in Turkish people, 249 primary hyperlipidemic subjects, aged 31 - 74 years (mean 54±7), were treated with once-a-day 250 mg controlled release fenofibrate following a lipid-lowering diet. The efficacy and safety parameters were measured at baseline, on the 8th and the 12th weeks of therapy. After a treatment of 12 weeks, a decrease by 14.8% ($p<0.0001$), 13% ($p<0.001$), 40.7% ($p<0.0001$), 8.3% ($p<0.01$) in total cholesterol, LDL-cholesterol, triglycerides, fibrinogen levels, respectively, and an increase by 18.4% ($p<0.0001$) in HDL-cholesterol level from baseline were detected. No significant changes in safety parameters such as SGOT, SGPT, CPK, GGT, urea and creatinine levels were noted.

We conclude that fenofibrate is an effective and safe hypolipidemic agent and has a strong efficacy in the treatment of high triglyceride level, which is common in the Turkish population. Fenofibrate also decreases fibrinogen level known as an independent cardiovascular risk factor. A significant increase in low HDL cholesterol level may be accepted as an additional beneficial effect of the drug.

Key words: Hypercholesterolemia, hypertriglyceridemia, fenofibrate

Permanent Pacemaker Implantation After Cardiac Surgery

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The aim of our study was to evaluate the short and long-term results and complications of permanent pacemaker implantation after cardiac surgery and to analyze the clinical characteristics of the patient group. Fifty-two patients with permanent pacemakers, which were implanted after a cardiac surgery between April 1988 and December 1997, were analyzed retrospectively. Most of the patients, who necessitated permanent pacemaker implantation

postoperatively, had preoperative conduction disturbances (90%). In patients over 18 years old, the most common underlying operations were aortic valve replacement and mitral valve replacements with tricuspid valve replacement (17.3%), while in children it was surgery for correction of atrial septal defect, primum type (28.8%). The most common electrocardiographic diagnosis in the patient group was an escape rhythm secondary to an atrioventricular block with a narrow QRS complex (55.7%). At the end of the 1980s, in our hospital, VVI pacemakers and epicardial leads were implanted in these patients for the management of AV blocks occurring after a cardiac surgery. But recently endocardial leads, VVIR, DDDR, and VDD pacemakers have been implanted. Threshold values for epicardial leads were higher than those for endocardial leads, 0.99 V and 0.50 V, respectively, ($p<0.002$). The pacemaker pocket hematoma was the most common acute complication (3.7%), whereas ventricular lead complication was the most common chronic complication (13.3%).

Key words: Cardiac surgery, permanent cardiac pacemakers

Role of Transesophageal Echocardiography in Diagnosis and Management of Cardiac Hydatid Cyst: Report of two cases and review of the literature

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We present 2 unusual cases of cardiac hydatid cyst and discuss the role of transesophageal echocardiography (TEE) in the diagnosis and treatment. In the first case, we reported right atrial hydatid cyst in which cannulation and cyst extraction was done under TEE guidance. In the second, we reported a patient with multiple degenerative pericardial hydatid cysts evaluated by several imaging modalities including TEE. It was concluded that TEE is helpful for both the diagnosis and successful surgical treatment of cardiac hydatid cyst.

Key words: Hydatid cyst, transesophageal echocardiography, right atrium, pericardium