

Summaries of Articles

Clinical Investigations

Turkish Survey on Therapeutic Intervention in Coronary Heart Disease

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The survey aimed to determine to which extent major coronary risk factors were recorded in the medical files of coronary heart disease (CHD) patients at hospitalisation and at an interview 6 months later, and whether recommendations regarding prophylactic drug therapy, smoking, diet and exercise were recorded. A total of 547 consecutive patients' medical records were examined from 15 cardiac centers and general hospitals located in different geographical regions of the country. Among patients having their first coronary event, the diagnosis was AMI in 69%, unstable angina in 20% and first elective or emergency PTCA or CABG in 11%. Mean age of the patients was 58.1 ± 10 , 23% of whom were women. In-hospital mortality rate was 5.1, and 2.2% had died by the time of the interview. In 28.7% a PTCA and in 16.1% a CABG was undertaken. Thirteen % of survivors did not attend the interview at the 6th month.

The charts in 43% of patients lacked information on hypercholesterolemia and in 25% on diabetes. Fifty-eight % smoked cigarettes, 20% were obese (BMI ≥ 30 kgm²), 49% were hypertensive (SBP ≥ 140 and/or DBP ≥ 90 mmHg and/or on antihypertensive drugs), 58% had high total plasma cholesterol (≥ 200 mg/dL). In 57% the ratio of total cholesterol to HDL-C was over 5. In 31% fasting blood glucose concentration was over 126 mg/dL. By the time of the interview 22.5% were still smoking cigarettes and 17% obese, 44% had high blood pressure, 41% high total plasma cholesterol, 44% high total cholesterol/HDL-C ratio, and 16% high fasting blood glucose concentration.

Reported aspirin use was 78% in the hospital and 74% at the 6th month. The figures for beta-blockers were 49% and 28.5%, for ACE-inhibitors 38% and 17.8%, nitrates 67% and 47%, calcium channel blockers 22% and 24.8%, statins 23% and 27%,

respectively. Every 2 patients out of 5 were not on diet and were leading a sedentary life-style. Risk factor modification and reported drug therapy were even more unfavorable in the revascularized (PTCA and CABG) group.

It was concluded that by means of effective risk factor modification and appropriate use of prophylactic drugs, there remains still a great potential for cardiologists and physicians to reduce further the mortality and morbidity in Turkish patients with established coronary heart disease.

Key words: coronary heart disease, risk factors, drug therapy, cigarette smoking, secondary prevention

Factors Affecting Regional Myocardial Function in Patients with Chronic Critical Coronary Artery Stenosis or Occlusion

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Although the effects of collateral and antegrade flow on regional functions after acute myocardial infarction have been intensively investigated, the effects of these and some other factors on regional myocardial functions in patients with chronic coronary artery lesions have not been adequately interrogated yet and results remains rather controversial. In our study, we have investigated effects of collateral and antegrade flow and degree and location of stenosis (proximal or middle) on regional myocardial functions in patients with chronic left anterior descending (LAD) artery stenosis. For this purpose 121 patients whose coronary angiography and ventriculography were performed in our catheterization laboratory were divided into three groups. Group A, control group (n= 14) was consisted of patients with normal angiographic and ventriculographic evaluation. Group B had patients with critical narrowing $>75\%$ in LAD (n=65) and group C had patients with total occlusion in LAD (n=42). Regional wall motion was expressed as the fractional changes from end-systolic to end-diastolic hemiaxial length. The territory of LAD was divided into four segments as anterobasal, mid

anterior anteroapical and apex. Regional function of all segments in group C were very low compared to group A and B. In group B, there was a significant effect of TIMI antegrade flow to each regional function. Moreover, a subgroup analysis considering LAD stenosis between %75-90 and >%90 demonstrated a better mid anterior and anteroapical function in the former. Location of the lesion and collateral flow in group B and antergrade flow in group C had no relation with regional function, but collateral flow in group C had significant relation. Patients with TIMI 3 flow had better left ventricular functions in all segments compared to TIMI 1 and 2 patients whereas, no significant difference was demonstrated between TIMI 1 and 2 patients. Furthermore, in this group, anterobasal function in proximal LAD lesions were worse tendency than those in the middle. Conclusively, antegrade flow and severity of stenosis have effective on regional function (especially in mid anterior and anteroapical) in patients with critical LAD stenosis whereas, the degree of collateral flow and location of the lesion have a significant effect on regional function in patients with total LAD occlusion (especially in anterobasal region).

Key words; Left anterior descending artery, regional function, collateral flow, antegrade flow

The Relationship Between QT Dispersion and Serum Insulin, Glucose Levels

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QT dispersion (QTD) and rate-corrected QTD (QTcD) reflect inhomogeneity of repolarization of the ventricular myocardium. This study was performed to evaluate the relationship between blood insulin c-peptide, glucose levels and QTD,QTcD. In twenty-two healthy volunteers (17 male, 5 female; mean age 48.7 ± 10.1 year) QTD, blood glucose, c-peptide levels were measured 0, 30, 60, 90 and 120 minutes after 75 g oral glucose load. QTcD was calculated with the Bazett's formula.

Mean values for QTD were 15.6 ± 5.1 , 30.4 ± 9.5 , 35.8 ± 11.8 , 24.6 ± 9.5 , 20.6 ± 7.3 ms and for QTcD were 17.3 ± 5.1 , 34.6 ± 11.2 , 40.4 ± 13.5 , 30.1 ± 11.0 , 22.7 ± 8.0 ms. Blood glucose averaged 81.8 ± 16.1 ,

125.1 ± 33.8 , 160.3 ± 38.8 , 158.1 ± 64.8 , 122.5 ± 54.5 mg/dL; and c-peptide 2.2 ± 0.6 , 6.3 ± 1.9 , 9.7 ± 1.6 , 9.3 ± 2.7 , 8.1 ± 3.3 ng/dL, respectively.

There was a positive correlation between c peptide level and QTD ($r=0.412$, $p<0.01$), QTcD ($r=0.431$, $p<0.005$) and between glucose level and QTD ($r=0.512$, $p<0.001$), QTcD ($r=0.535$, $p<0.001$). QTD and QTcD at the 60th min after glucose load were at the highest level. There was a parallel shortening of the QTD, QTcD with the c-peptide, glucose decrease.

This study indicated that QTD and QTcD get longer with hyperglycemia and hyperinsulinemia and probably this effect is due to the modulation of cardiac cell membrane potential by insulin.

Key words: QT dispersion, insulin, glucose

Immunologic Effect of Antihypertensive Therapy in Patients with Essential Hypertension

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Essential hypertension coexists with immune system disturbances of cellular as well as humoral links. We propose to consider these disturbances for administering hypertensive therapy as the potential benefit of blood pressure reduction may be compromised if immune system parameters are deteriorated or the background of treatment. Thus, thiazide diuretics result in unfavourable changes of immune system; in contrast to them, calcium channel blockers and alpha-blockers are "immunoneutral" and only ACE inhibitors possess a favourable effect of varying degree on the immune state of hypertensive patients.

Key words: Antihypertensive therapy, essential hypertension, immune disturbances, cellular immunity, humoral immunity, immunocorrection

Determinants of Systolic Pulmonary Venous Flow Reversal by Transthoracic Pulsed Doppler in Mitral Regurgitation: Its Value in the Quantification of the Severity of Regurgitation

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Systolic pulmonary venous flow reversal (SPVFR)

has been evaluated in mitral regurgitation (MR) primarily by transesophageal echocardiography (TEE). There is limited study on the value of SPVFR obtained from transthoracic echocardiography (TTE) for the quantification of MR. In this study, determinants of SPVFR and the accuracy of SPVFR obtained with TTE in determining the severity of MR were investigated.

Methods: Fifty patients with MR in whom reference quantitative Doppler evaluation was carried out formed the study group. Thirty nine of them underwent cardiac catheterization. In all patients, SPVFR was evaluated by pulsed Doppler echo placed both at the right and left pulmonary vein in the apical four-chamber view.

Results: The SPVFR was present in 26 (52%) patients. Atrial fibrillation, and grade III- IV MR by catheterization were more frequent in patients who had SPVFR. Patients with SPVFR had increased values for regurgitant orifice area, regurgitant volume, regurgitant fraction, and left atrium/left ventricle diameters and volumes compared to patients without SPVFR. On multivariate analysis regurgitant fraction (RF) was the single and most powerful determinant of SPVFR ($p<0.001$). The SPVFR had high sensitivity, specificity and accuracy for the diagnosis of severe MR (89, 95, 92%, respectively).

It was concluded that SPVFR is a useful method for the evaluation of the severity of mitral regurgitation.

Key words: Systolic pulmonary flow reversal, mitral regurgitation, pulsed Doppler echocardiography, cardiac catheterization

Percutaneous Mitral Balloon Valvulotomy in Patients With Thrombus in Left Atrial Appendage

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Percutaneous mitral balloon valvulotomy (PMV) is an effective and safe alternative to surgery in patients with symptomatic mitral stenosis. Thrombus formation in left atrial appendage (LAA) is a common finding. We report about the results of TEE-guided valvulotomy in 14 cases with LAA thrombus. All patients were anticoagulated for one

month. TEE prior to valvulotomy showed no thrombus in 5 (36%) patients. Nine patients underwent multiplane TEE-guided valvulotomy. Eight of them (88%) were female. Mean age was 39.7 ± 8.6 years. All were in atrial fibrillation. Valve area, mean mitral gradient and systolic pulmonary artery pressures pre- and postoperative were 0.97 ± 0.22 cm² vs 1.94 ± 0.27 cm² ($p<0.01$), 13.7 ± 3.76 mmHg vs 3.57 ± 1.9 mmHg ($p<0.01$) and 69.4 ± 18.1 mmHg vs 36 ± 10 mmHg ($p<0.01$), respectively. None of the cases showed an embolic phenomenon or other complication.

Key words: Mitral stenosis, left atrial appendage thrombus, mitral balloon valvulotomy

Our Initial Experiences on Intracoronary Pressure and Myocardial Fractional Flow Reserve Measurements in Intermediate Lesions

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In this article, we tried to summarize our first clinical experience with the measurement of myocardial fractional flow reserve (mFFR) utilising intracoronary pressure recordings in coronary stenoses of intermediate severity.

A total of 35 angiographically intermediate lesions (%30-70 stenosis) in 31 patients were evaluated by mFFR. Micromanometer-tipped pressure wire was used to measure intracoronary pressures, and maximum coronary hyperemia was induced by intracoronary adenosine. Isolated intermediate lesions in 2 separate coronary arteries in 4 patients and in a single coronary artery in the remaining 27 patients were evaluated by mFFR. Of the 35 lesions, 29 were de novo and 6 were in-stent stenoses. The mean diameter stenosis with coronary angiography was 49.7 ± 10.1 % and the corresponding mean mFFR was 0.83 ± 0.1 . Myocardial fractional flow reserve was found to be below 0.75 in 4(11%) and 0.75 or above in 31(89%) of the lesions. In those cases in whom mFFR was measured both before and after coronary intervention, the low preprocedural mFFR was observed to increase following a successful procedure. In all cases, high quality intracoronary pressure signals were obtained and no complications were observed with regard to both the

manipulation of the 0.014 inch pressure wire and intracoronary adenosine injection.

It is concluded that measurement of mFFR in coronary stenoses of intermediate severity with the use of intracoronary pressure recordings obtained through 0.014 inch pressure wire during maximum coronary hyperemia induced by intracoronary adenosine injection is a practical and safe technique.

Key words: Fractional flow reserve, coronary stenosis, intracoronary pressure

Reviews

Prinzmetal Angina Pectoris

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Prinzmetal angina pectoris is a special type of angina, not as common as stable or unstable forms of angina. Most patients suffer from feeling of retrosternal crushing or pain. Attacks last a few minutes and stop spontaneously or by administration of nitrates. Presence of chest pain, ST-segment elevation in ECG and regression of these findings with minutes, and absence of changes in cardiac enzymes are characteristics of Prinzmetal angina pectoris. Even though calcium channel blockers and nitrates are often effective in treatment, acute myocardial infarction, life-threatening arrhythmias and sudden cardiac death may occur. In this review, we attempted to summarize some important points on Prinzmetal angina pectoris.

Key words: Angina pectoris, Prinzmetal type, vasospasm

A Recent Development in Invasive Cardiology: Fractional Flow Reserve (FFR)

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Even quantitative coronary angiography has limitations in defining the physiologic importance of a given coronary artery lesion. The usual non-invasive stress tests (exercise stress test, myocardial perfusion scintigraphy, stress echocardiography) may have the same limitations regarding either diagnostic value or

time and money consumption due to the performance in a different location other than the angiography laboratory. Recently developed fractional flow reserve (FFR) method, as an invasive tool, seems to have solutions for both. By definition, FFR is the ratio of post- and pre-lesional pressures measured at the point of maximal hyperemia induced by intracoronary infusion of pharmacologic agents. Distal pressures can be easily obtained with the help of a microtransducer mounted on usual angioplasty guidewires. Up-to-date there are numerous publications confirming the application of FFR method which includes defining the physiologic importance of coronary lesions; postponing the planned coronary intervention on the basis of FFR measurements; guidance for optimal PTCA or coronary stent applications. The limitations, in other words the field for new investigations, of the method are the presence of systemic or local myocardial diseases that may effect the microvascular bed of the related myocardial region. In this review the theoretical basis, application technique in the cath-lab, well-defined indications and limitations of the FFR method are discussed.

Key words: fractional flow reserve, coronary artery disease, coronary ballon angioplasty, ischemia, acute myocardial infarction

Case Report

Epicardial Pacemaker Wire and Anticoagulant Therapy Leading to Rectus Abdominis Muscle Hematoma

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Rectus abdominis muscle hematoma is an uncommon clinical entity. The most common contributory factors are external or internal traumas. In this report, two cases with rectus abdominis muscle hematoma are presented. To our best knowledge they are the first two cases of rectus abdominis muscle hematoma, which occurred as a result of a trauma to the epigastric vessel caused by the insertion of an epicardial pacemaker wire during the open heart surgery.

Keywords: Rectus abdominis muscle hematoma, epicardial pacemaker wire