Summaries of Articles

Investigations

HDL-Cholesterol and Fibrinogen Levels and Associations with Some Risk Factors in the Population of the Marmara Region

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The Marmara cohort of the Turkish Risk Factor Survey was followed up in 1997 in regard to previously studied risk parameters and -newly- plasma HDL-cholesterol, fibrinogen and waist/hip ratio. 730 subjects were examined including 212 individuals randomly selected to replace in part those lost to follow-up. HDL-cholesterol concentrations were measured by a Reflotron apparatus, validated in part in a reference laboratory and were accordingly adjusted. Fibrinogen was measured by a modified Clauss method.

When stratified for sex and age, mean HDL-cholesterol levels were found to be 38 mg/dl in men and 45 mg/dl in women, irrespective of significant changes with age. Levels were low in both genders and were in agreement with those obtained at the Turkish Heart Study. Concentrations of HDL-cholesterol were significantly correlated in men to waist/hip ratio (r=0.37) and body mass index (r=0.34) and in women with diastolic pressure, in addition to being inversely associated with plasma triglycerides (r=0.43) and systolic blood pressure (r=0.50).

Plasma fibrinogen appeared to be independent of age in women exhibiting a mean level of 2.59 g/l and was consistently higher than levels in men till age 70. These levels rose in men with age and were correlated (r=0.40) with waist/hip ratio while in women significant associations existed with diastolic pressure as well as inversely with systolic pressure (r=0.13) and plasma triglycerides (r=0.45). Moreover, instead of an anticipated inverse relation, fibrinogen and HDL-cholesterol levels displayed a modest but direct correlation between each other (r=0.27 and 0.41, in men and women, respectively).

Effect of Platelet-rich Intraoperative Plasmapheresis on the Need for Homologous Blood Use in Coronary Bypass Surgery

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Platelet-rich intraoperative plasmapheresis ensures the autotransfusion of undamaged platelets and clotting factors by the end of the operation. To evaluate this technology, 300 randomly selected patients with normal bleeding and clotting tests, who underwent coronary bypass surgery in Siyami Ersek Cardiovascular Surgery Center between 1992 and 1994, were divided into plasmapheresis (n=150) and control (n=150) groups.

Plasmapheresis was begun just after the insertion of Swan-Ganz catheter and ended before the heparinization. The preoperative properties of both groups were similar. The indication for transfusion was a hemoglobin level lower than 7gr/100 ml for the patients younger than 70 years and lower than 8 gr/100 ml for older patients. Mediastinal drainage in the plasmapheresis group was 552 ± 26 cc. and in the control group 760 ± 35 cc. ($p<0.01$). The mean amount of homologous blood transfusion in the study group was 1,02 units and in the control group 1,9 units ($p<0,02$). The ratio of patients who did not need transfusion was significantly higher in the study group than the control group with 54,6 % (n=82) and 34,6 % (n=52), respectively ($p<0.001$). Therefore, this method is useful by reducing the amount of postoperative drainage as well as the need for homologous blood transfusion.

Intracardiac Air Formed During Open Heart Surgery Evaluated by Intraoperative Transesophageal Echocardiography

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By using transesophageal intraoperative echocardiography (ITEE) we investigated, the location and occurrence ratio of intracardiac air during open heart surgery and formation of microbubbles during cardiopulmonary bypass. For this purpose, we divided patients who were planned to have elective open heart surgery into two groups. Group one was formed by 10 patients with aortic and/or mitral valve surgery,

group two by 10 patients with coronary bypass surgery by cardiopulmonary bypass. Intracardiac air bubbles were detected in all patients in group one and half of patients in group two. By ITEE it was demonstrated that in 70% of group one patients, intracardiac air originated from pulmonary veins. Deairing procedures in the guidence of ITEE was not always successful in removing all the air but the intensity of bubbles was diminished. Carefully performed standard dearing methods could not provide removal of air bubbles in the pulmonary veins. No neurologic complications were observed. Using ITEE during deairing procedures will raise the attention to intracardiac air problems and will aid in preventing air embolism.

Echocardiographic Findings in Nine Children and Three Grown-up Relatives with Marfan Syndrome

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Marfan syndrome is an autosomal dominant connective tissue disorder involving the cardiovascular, musculoskeletal and ocular systems. Of all the signs and symptoms involved in this syndrome, the cardiovascular are the most worrisome, since main cause of morbidity and mortality are aortic root aneurysm and rupture, as well as severe mitral regurgitation. Twelve cases in five families with Marfan syndrome (nine children and three young adults) have been discussed in terms of echocardiographic findings. All of the twelve cases had mitral valve involvement revealing as mitral valve prolapse (with "floppy" mitral valve in eight) and chordal elongation which proved statistically meaningful when compared with measurements from the mitral chordae and mitral leaflet tip taken from a control group comprising twelve healthy individuals. In eight of the twelve cases mitral valve pathology was associated with aortic root dilatation, "localized" to the aortic sinuses in three cases and "generalized" to involve the proximal ascending aorta in five. The three young adults, although the aortic root measurements were below 4 cm as yet, had the severest cardiac envolvement compared to the children, which was in agreement with the general consensus in the literature that cardiac lesions in Marfan syndrome are progressive with age. After a review of literature on the Marfan syndrome, we would like to emphasize that early detection of cardiac lesions in this rare but important syndrome and regular follow-up to detect worsening may be life-saving since medical and surgical intervention have been shown to improve life quality survival rate.

Relation of Exercise-induced Ventricular Arrhythmias to Myocardial Viability in Recent Q-wave Myocardial Infarction

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The association of exercise-induced ventricular arrhythmias with a form of coronary artery disease that carries a worse long-term prognosis and the suppression of these arrhythmias by intravenous nitrates and after successful revascularization suggest that they might be related to viable myocardium in the infarct area. To investigate this, 40 patients with a recent myocardial infarction (<6 months) were studied by exercise stress testing, coronary angiography and exercise-redistribution-reinjection thallium single-photon emission computed tomography (SPECT). A 20-segment model and a four-point scoring system were used to express thallium uptake in each segment (normal=0;severe defect=3). Myocardial segments containing at least 50% of normal Tl-201 uptake on circumferential analysis were considered viable. Regional wall motion on ventriculography was graded semiquantitatively on a 7-segment model (normal=0; dyskinetic=3). Patients were divided into two groups according to the presence (group 1, n= 20) or absence (group 2, n= 20) of exercise-induced ventricular arrhythmias (>10 ventricular ectopic beats/min). Viability was detected in all 20 patients in group 1, but in only 12 patients in group 2 ($p<0.01$). There was no significant difference in the total number of segments with perfusion defects (8.0 ± 2.9 and 6.4 ± 2.6). The number of segments with nonviable fixed defects were also comparable between the two groups (3.2 ± 2.2 and 3.7 ± 1.5), whereas the number of viable segments (redistribution or ≥50% Tl-201 uptake) were higher in group 1 compared to group 2 (4.8 ± 1.5 vs 2.5 ± 2.5, $p<0.01$). There was no significant difference in the extent of underlying coronary artery disease, but retrograde filling by collaterals to the infarct-related ar-

tery was significantly better in group 1 compared to group 2 ($p < 0.05$). Wall motion abnormality score was also similar (2.9 ± 0.9 and 3.1 ± 1.0) and no patient had a left ventricular aneurysm. These results suggest that ventricular arrhythmias associated with treadmill exercise testing are closely related to viable myocardium in the infarct area in patients with recent myocardial infarction.

Assessment of Left Atrial Appendage Flows Before and After Percutaneous Mitral Balloon Valvotomy in Patients With Mitral Stenosis

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Formation of thrombus at the left atrial appendage is frequently seen in patients with mitral stenosis. The aim of this study was to assess the left atrial appendix (LAA) function before and after percutaneous mitral balloon valvotomy (PMV). We studied 10 healthy persons and 20 patients with mitral stenosis. We performed PMV by using the Inoue technique in 10 patients. We performed transthoracic (TTE) and transesophageal echocardiography (TEE) in the control group; TTE, TEE and cardiac catheterization in patients with mitral stenosis before and after valvotomy.

Twelve patients had sinus rhythm and 8 patients were in atrial fibrillation. Spontaneous contrast was present in 14 patients and was absent in 6 patients. The left atrial appendix area (LAAA) max., LAAA min. and LAA ejection fraction (EF) were 1.67 ± 0.53 cm^2, 0.68 ± 0.22 cm^2 and $\%59 \pm 4$ in control groups, respectively. Mean peak velocities of the filling and emptying waves were 28.5 ± 2.17 cm/sec and 30.4 ± 2.46 cm/sec in the control group, respectively. We found that appendix area was increased and appendix ejection fraction was reduced, and appendix flow velocity was reduced. LAAAmax., LAAAmin., LAA EF, mean peak velocities of the filling and emptying wave were 3.19 ± 0.65 cm^2, 2.67 ± 0.5 cm^2, 16.4%, 16.5 ± 1.8 cm/sec and 16.3 ± 1.53 cm/sec., respectively.

The mitral valve area was increased from 1.12 ± 0.21 cm^2 to 2.17 ± 0.24 cm^2 ($p=00001$) after PMV (immediate) appendix area max., and min. were significantly reduced, appendix ejection fraction was improved from $17 \pm 5\%$ to $35 \pm 5\%$ ($p=0.0001$), mean peak velocities of filling and emptying waves were increased from 15.4 ± 2.1 to 22.6 ± 2.4 and 15.8 ± 1.48 to 22.9 ± 2.4, respectively, One month after PMV, appendix function was also showing a trend toward improvement ($p < 0.001$, $p < 0.003$, $p < 0.001$, respectively). Thus, immediate assessment of the LAA function after PMV shows global improvement of the appendix function and Doppler outflow. One month after PMV, this improvement trend continued.

Review

Myocardial Viability and Perfusion Scintigraphy

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Accurate assessment of myocardial viability in patients with coronary artery disease and left ventricular dysfunction is of clinical importance because a substantial subset of the patients will show striking improvement in ventricular function after successful revascularization. There are a number of invasive and noninvasive techniques for the assessment of myocardial viability. Among these, two modalities, myocardial perfusion imaging (MPI) and two-dimensional (2-D) echocardiography, have met with wide acceptance. Although positron emission tomography (PET) is a very effective tool in detecting myocardial viability, its high costs and limited availability reduce its clinical use significantly. Thallium-201 MPI, which is cheaper and widely available, have had great acceptance, especially after recent modifications on imaging and interpretation methodologies, in viability assessment. The most commonly used technetium- labelled MPI radiopharmaceutical, Tc-99m methoxyisobutyl isonitrile (MIBI), seems to be a promising viability agent. In this review, the role of MPI with thallium-201 or MIBI in the assessment of myocardial viability was discussed.