Summaries of Articles

Clinical İnvestigations

A New Radionuclide Method for Detecting Right Ventricular Involvement in Inferior Acute Myocardial Infarction: Tc-99m SESTAMIBI Gated SPECT Imaging

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This study sought to determine the value of a new method for visual and quantitative assessment of right ventricular involvement (RVI) in patients with inferior acute myocardial infarction using Tc-99m Sestamibi gated SPECT imaging which allows simultaneous assessment of left ventricular perfusion and function. The study comprised 14 patients with inferior myocardial infarction suspected of having RVI and 16 normal subjects. Diagnosis of RVI was confirmed with hemodynamic studies and a proximal right coronary artery lesion was detected on angiography in all 14 patients. After normal hemodynamic results were attained (mean 6th day), echocardiography and gated SPECT imaging were performed on the same day. In normal subjects, mean left ventricular end-systolic (ES) maximal counts was 138±13/pixel whereas right ventricular ES maximal counts was 48±8/pixel on circumferential profile analysis. The maximal value of color scale, assigned to highest counts of the left ventricle, was set to a value corresponding to the maximal right ventricular activity allowing clear visualisation of right ventricular in all cases. Perfusion was graded on a 5-point score (0=normal; 4=absence of tracer uptake), wall motion on a 4-point score (0=akinesis/dyskinesis; 3=normal) and systolic thickening on a 4-point score (0=absence of thickening; 3=normal) on ES images. A perfusion score ≥2 and wall motion abnormality score ≤1 were defined as RVI. This method detected RVI in all 14 patients (100%). Moreover, quantitative analysis of segments with RVI revealed a significant reduction of Sestamibi uptake (mean 19±6 counts/pixel) when compared to the lower limit of normal ES uptake (33 counts/pixel) ($p<0.0001$). On the other hand, echocardiography identified only 57% of patients with RVI.

In conclusion, this new method using Tc-99m Sestamibi-gated SPECT imaging may provide a reliable visual and quantitative assessment of RVI in inferior acute myocardial infarction.

Key words: Acute myocardial infarction, myocardial perfusion imaging, SestaMIBI

While Cholesterol Levels Stay Stable, Blood Pressure Levels Tend to Rise in the Population of the Marmara Region of Turkey

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This report comprises the analysis of follow-up data pertaining to plasma lipids and blood pressure in the original cohort of the sample population of Turkey's Marmara region obtained in the 1997 survey of the Turkish Risk Factor Study. Among a total of 518 participants (of which 256 men), plasma cholesterol and triglyceride values were measured by a Reflotron apparatus. Cholesterol concentrations were validated in a group of random samples and upward adjusted for the obtained systematic bias of - 1.5%. Mean of two blood pressure measurements performed in a standard fashion were used. Adjustment was made in the parameters for the aging of the cohort by 7 years with the purpose of assessing changes incurred independent of aging.

Compared to baseline values in 1990, nett plasma total cholesterol levels in 1997 declined by 4.3 mg/dl in men and by 3 mg/dl in women. By contrast, mean fasting plasma triglyceride levels increased by 13.7 mg/dl in men, whereas this rise was not substantial in women (5.2 mg/dl). When age was kept constant, systolic blood pressure rose 4-5 mmHg in either gender. Diastolic pressure rose by 3 mmHg in women, while remaining unchanged among men. Thus, the global risk of the population of the Marmara region appears to exhibit a tendency to increasing risk in systolic pressure and plasma triglycerides among men, and in systolic and diastolic pressures in women.

Among hypertensive individuals, 38% were under

antihypertensive medication, while only 6% of subjects having total cholesterol levels in excess of 220 mg/dl were using lipid-lowering drugs (all statins) indicating a large gap of treatment.

Key words: Atherosclerosis, blood pressure, cholesterol, plasma triglycerides

Early and Six-month Follow-up Results of Our Single-lead DDD-pacing Experience

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Single-lead DDD-pacing is possible if stable atrial pacing is achieved without diaphragmatic stimulation. A new pacing mode with "overlapping biphasic impulse" (OLBI) stimulation which significantly reduced atrial pacing threshold has been reported. In this study the performance of OLBI stimulation was evaluated. In 10 patients (5 male, age 63±13 years) with complete or second-degree AV block, single-lead VDD systems with an additional atrial OLBI stimulation capability were implanted. Temporary OLBI atrial pacing and diaphragmatic stimulation thresholds, P and R wave amplitudes, electrode impedence and ventricular pacing thresholds were determined during implantation, before discharge and during 1, 3, 6-month follow-up period. Mean atrial pacing threshold (2.6±0.6V) did not change significantly during 6-month follow-up. Mean diaphragmatic stimulation threshold was 5.9±2V at implantation, and it was over 4.8V at 6th month which was the highest voltage that the pacemaker could apply for atrial pacing. In conclusion, the feasibility of OLBI stimulation for stable atrial pacing without diaphragmatic stimulation using floating atrial electrodes of single-lead system was verified in 80 percent of patients during 6-month follow-up period.

Key words: Atrial pacing, DDD pacing, single lead system

Muscular Ventricular Septal Defect: Follow-up Results in Relation to Anatomic Localisation and Diameter of the Defect in 69 Patients

T. Onat, M. Arapoğlu, G. Ahunbay, G. Batmaz, A. Çelebi

The median age at start of follow-up was 0.25 years in 69 patients with muscular ventricular septal defect (VSD). The duration of follow-up in 80% ranged between 0.1 and 9.7 years. The diameter of the defect ranged between 1-9 mm, and decreased 1.58 mm (±1.60) in 51 patients during the study period. While the incidence of pulmonary hypertension (PH) and L-R shunt was low, and spontaneous closure ratio was high (54%), in those with defect diameter ≤4 mm, the inverse was true for those with greater defects and none closed spontaneously. All defects ≤4 mm except one, turned to class Ia or closed spontaneously, while in those 13 patients with a defect >4 mm, PH continued in 4, shunt remained large in 5 and decreased in 8. Qp: Qs decreased from a mean of 1.77 (±1.04) to 1.34 (±0.80). The most common localisation of muscular defect were apical and midtrabecular, 12 disclosed multiple defects (17.4%). The diameter of the defect was between 1-5.8 mm (mean 3.7) in 29 patients with apical VSD and decreased significantly by 1.60 mm in 23 patients. Qp: Qs decreased from a mean value of 1.60 to 1.23 and spontaneous closure occurred in 10 (34.5%). Age at closure ranged between 0.08-13.67 years (median 0.23). On the other hand in 22 patients with midtrabecular defects, the diameter of the defect ranged between 2-9 mm (mean 3.57) and decreased 1.82 mm. Qp: Qs decreased from 1.45 to 1.16, while spontaneous closure occurred in 8 patients (36.4%). The age at closure ranged between 0.08 and 1.25 (median 0.61) years.

At onset left-right shunt was mild in 60 out of 69 patients. Both PH and severe shunt were seen in only 7 and none of those closed spontaneously while L-R shunt decreased in 3. The PH in those 29 patients with mild shunting normalised in 13, the defect closed spontaneously in 14, and only two remained in the same class. In the 31 patients without PH and mild shunting, the defect closed spontaneosly in 10, and 21 remained in the same class. Inlet type of defect was observed in two patients in whom the defect was closed surgically. The incidence of spontaneous closure was 24/69 (34.8%) in the total series. According to median values, the muscular defect closed spontaneously in the first 6 months of life. Cumulative closure ratio was 58% after age 1, 61% after age 8 and 64% during adolescence. The defect diameter ranged between 1-4 mm in 24 patients

whose defect closed spontaneously (median=3 mm). Qp: Qs was < 1.5 in half of them and age at closure ranged between 0.08 and 13.67 (median 0.38). It was concluded that prognosis depends not on the the localisation, but on the diameter of the defect.

Key words: Congenital heart disease, Doppler echocardiography, ventricular septal defect

A Preliminary Report on the Senatitivity of Plasma Lipoproteins to Low-dose Simvastatin in Nine Turkish Men

T.P. Bersot, R.W. Mahley

High plasma levels of low density lipoprotein cholesterol (LDL-C) (>160 mg/dL) and low levels of high density lipoprotein eholesterol (HDL-C) (<35 mg/dL) increase the risk of premature coronary heart disease. The Turkish population appears to be unique in having unusually low levels of HDL-C that may be genetic in origin. In addition, many of the affluent Turkish men and women living in urban areas have elevated cholesterol and LDL-C levels and thus have very detrimental total cholesterol/HDL-C ratios <5. The present pilot study was undertaken to determine if low-dose simvastatin could improve this ratio. Nine Turkish men with HDL-C ≤35 mg/dL and total cholesterol/HDL-C <5.5 were treated with simvastatin, 10 mg/day, for 8 weeks. The LDL-C levels were dramatically reduced by 42%, a response typically seen only with higher drug doses. In addition, and surprisingly, HDL-C levels increased by 23%, an atypical result for statin therapy at any dose. These highly desirable effects lowered the mean total cholesterol/HDL-C ratio by 43%, from 7.5 at baseline to 4.3 after 8 weeks of drug therapy. These results suggest that low-dose simvastatin is particularly effective in Turks.

Key words: Plasma lipoproteins, simvastatin, TC/HDL-C ratio

Ballon Atrial Septostomy Under Echocardiographic Guidance: Availability in emergency conditions

G. Batmaz, A. Çelebi, G. Ahunbay, İ.L. Saltık, B. Ilıkkan, T. Onat

Balloon atrial septostomy (BAS) is a standard palliative procedure in neonates with d-transposition of the great arteries (TGA) and it has traditionally been performed in the cardiac catheterization laboratory. The cross-sectional echocardiography (echo) has been used to help during the procedure.

During a period of 9 months, 12 patients, 11 of them with TGA, admitted to our Clinics, underwent BAS under echo guidance. Their ages ranged 1- 55 days, and they weighed 2500-4400 gr. The intervention was realized in neonatal intensive care unit (ICU). Under local anesthesia and sedation with midazolam, 4 Fr. arterial sheath was inserted to femoral vein, thereafter was exchanged with 7 Fr. arterial sheath. BAS was realized with standard technic using 5 F Miller BAS catheter. While the diameter of interatrial communication ranged 1-3.2 mm. before septostomy, it reached 6.5 mm. on average and O_2 saturation increased from 47% to 78 % in patients with TGA. The sheath was in the femoral artery instead of vein in two patients, but no arterial complication was observed in both of these cases. We observed nodal rhythm in one patient, and a supraventricular tachycardia in another. Both of them reverted spontaneously.

The baby with TGA may need management in the ICU. Transferring the baby who is mechanically ventilated to the catheterisation laboratory takes time and can be harmful for him. Moreover, it carries risk of extubation and heat loss. BAS under echocardiographic guidance is an effective alternative to the classical fluoroscopic procedure and is less time consuming under special circumstances.

Key words: Balloon atrial septostomy, echocardiography, transposition of the great arteries

Review

Postprandial Lipemia and Coronary Artery Disease: A significant risk factor

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The role of high plasma total cholesterol and LDL-cholesterol level is well established in the process of atherosclerosis but this is not the same for triglycerides. The main lipids that accumulate in

plasma in the postprandial state are triglyceride-rich lipoproteins. Postprandial state is about 3/4 of a day and important interactions between lipoproteins occur at this time. Triglyceride-rich lipoproteins are chylomicrons, VLD and remmants of these lipids. Postprandial lipemia period involves the period during which the metabolism of these lipoproteins occur. It has been more than 40 years, since extensive research began on the role of these lipoproteins in the atherogenesis process. The data obtained from these studies show that postprandial lipids are associated with atheroma deposition and coronary events. Theoretically, in the presence of an erroneous metabolism of these lipids, the latter can interact with the vessel wall more closely and promote atherogenesis. They have close interactions with other lipoproteins and HDL, and they can directly promote atherogenesis by penetrating the arterial wall. Despite significant amount of knowledge obtained in this field, further research is needed to better elucidate the existing relationship between dietary intake, postprandial response and pathological events.

Key words: Atherosclerosis, coronary artery disease, lipemia, triglycerides.

History of Cardiology and Philately :

Pulmonary Circulation

Teoman Onat

Pulmonary circulation of the blood was first described by Ibn al-Naphis (1210-1288). He disputed Galen's view that the blood passes directly from the right to the left side, because he found no pores in the septal wall (1268). He further added that after mixing with air in the lungs, the blood returns through the pulmonary veins to the left side of the heart and forms the vital spirit. After medical studies in Damascus, he practiced as Chief of physicians in Cairo and in Nureddin Hospital, Damascus. His notes on the "Canon" were translated to Latin for the Spanish Royal Library and probably have influenced Miguel Servetus (1511-1553) who mentioned in "Christianismi restitutio" that the blood is driven from the right ventricle over a long course through the lungs, is made flavus and thence passes from the arterial vein into the venous artery (1553). As proof against blood's nutrition function alone, he stated that the caliber of the arterial vein would not be so large, nor carry such a big amount of blood. A later version of the pulmonary circulation was given by Andrea Cesalpino (1524-1603) prof. of medicine and botany at the Pisa University, Italy. These three scientists were honored postally and the stamps are shown in the text.