

Summaries of Articles

Clinical Investigations

Magnitude of Interdependence of Systolic and Diastolic Blood Pressure from Other Risk Factors in Turkish Adults

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Relationship between systolic and diastolic blood pressure and body mass index, grade of physical activity, plasma lipid levels and presence of diabetes mellitus was investigated in the surviving 1112 men and 1146 women traced in 1995 (and initially examined in 1990) among a random sample of Turkish adults. Systolic and diastolic blood pressure was classified into two normal and one abnormal tertiles, and relationships were sought in two age categories (young 24-44 years, elderly 45-74 years) and after age adjustment. The magnitude of change in blood pressure accompanying a change of 10% in each risk parameter was studied.

Blood pressure was dependent in both genders most consistently on the body mass index. A 10%-rise in relative weight was associated with a blood pressure rise of 40/22 mmHg in men and of 23/16 mmHg in women. A similar increase in plasma triglycerides accompanied a systolic pressure rise of 18 and 16 mmHg in men and women, respectively. Plasma cholesterol exhibited a weaker relation to blood pressure, except for elderly women. A decline by one-quarter physical activity grade was associated with a blood pressure elevation of 38/10 mmHg in men while no relation between the two mentioned parameters existed in women. It is worth emphasizing that these interrelations were valid within the frame of normal values and moderate disturbances of blood pressure and of other risk parameters and that extrapolation to severe deviations of risk factors from normal may be misleading.

The clustering in women of four other risk factors with systolic hypertension (≥ 130 mmHg) was studied. After adjustment for age, diabetes was 1.7 times more often clustered to hypertension as compared to normotensive women. Obesity, more strongly interdependent with hypertension, was 2.8 times more frequently linked to hypertension in young women,

and 1.8 times in elderly women. Plasma cholesterol and triglycerides were strongly clustered to abnormal systolic pressure in young women alone. In one among every 70 adult Turkish women, four risk factors comprised in the syndrome X coexisted.

It was thus concluded that a positive linear relation exists in Turkish adults between blood pressure on the one hand and relative weight, plasma lipid levels and physical activity in men- on the other. In the normal state functions such as the regulation of blood pressure, body weight and lipid metabolism are closely linked to each other.

Use of New PISA Methods to Calculate the Mitral Valve Area in Mitral Stenosis

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Our study aimed to compare the validity of five non-invasive methods used in the calculation of the mitral valve area. We studied 34 patients with rheumatic mitral stenosis. Mitral valve area was calculated for all patients using planimetric method, pressure-half time method, PISA, and corrected PISA methods and new mathematical method. The calculated average mitral valve areas were similar for all techniques (139 ± 0.06 cm², 141 ± 0.06 cm², 141 ± 0.08 cm², 141 ± 0.05 cm², 142 ± 0.08 cm², respectively) ($p < 0.01$). The most relevant correlation to the planimetry was obtained with the pressure-half time method ($r = 0.94$). The other was between the planimetry and the corrected PISA method ($r = 0.92$). These correlations were followed by the new mathematical method ($r = 0.88$) and the PISA method ($r = 0.85$).

In view of the anatomy of the valvular and subvalvular apparatus, since the assumption of PISA as a half-spherical area is inaccurate and the assumption as a horizontally cut funnel-shaped area is more appropriate as in our mathematical model, this new method may have correlated better with the planimetry than the PISA method.

In conclusion, all five techniques can be used in as-

sessing mitral valve area in patients with mitral stenosis. The new method is proposed as an alternative to determine the mitral valve area.

Directional Coronary Atherectomy: Primary Success and Early Outcome

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In this study, we examined 47 patients who had undergone directional coronary atherectomy (DCA), in order to evaluate the early outcome. The procedure was performed to 47 lesions of 44 male and 3 female patients (mean age 53 ± 8). The lesion sites were left anterior descending in 39, right coronary in 7 patients and circumflex artery in 1 patient (44 non-ostial eccentric lesions, 2 ostial lesions, and 1 post-PTCA short dissection). 38 of them were "de novo" lesions and 9 restenosis. The procedural success was 93.6% and the clinical success 89.4%. The mean diameter stenosis decreased from $82.8\pm 10.5\%$ to $12.8\pm 11.8\%$ ($p < (10)^{-6}$). On average 5.8 specimens (3-5) per patient were removed. In 17 lesions (41.3%) adjunctive balloon angioplasty were performed. Two patients were referred for emergency coronary by-pass surgery (because of abrupt closure in one and perforation in the other patient). Q wave myocardial infarction (MI) occurred in one patient (2.1%), non-Q MI in one patient (2.1%), subacute occlusion successfully treated by thrombolysis and PTCA in one patient (2.1%), side branch loss in one patient (2.1%) and non-occlusive dissection in two patients (4.2%). Major complication rate was 6.3% and minor 10.5%.

We concluded that DCA can be performed effectively in non-angulated, non-tortuous and non-calcific proximal lesions shorter than 20 mm, and is a method that increases the operator's performance in complex lesions.

Balloon Occlusion Angiography in Determining the Size and Shape of Patent Ductus

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Nonsurgical techniques for patent ductus arteriosus (PDA) closure require precise knowledge of ductus diameter, length and shape. We review the validity

of balloon occlusion angiography (BOA) in determining the size and shape of PDA in 17 patients (3 male, 14 female) between April 1992 and July 1994. The patients' age ranged 9 months to 9 years (mean 3.54 ± 2.22) and weight 6.1 to 20 kg (mean 12.3 ± 4.04). The aorta was entered via transvenous route through PDA. The aortography was performed by using direct and balloon occlusion techniques at 90° left lateral position and two techniques were compared. PDA anatomy was well visualized in all cases with BOA. Direct injection method did not demonstrate PDA anatomy in detail in 6 (%35.3) patients. In all patients, PDA internal diameter measured by BOA method was greater than the internal diameter measured by direct aortography method. We concluded that, BOA method has some advantages over direct aortography for identification of the size and shape of PDA.

Doppler Echocardiographic Evaluation of the Pulmonary Arteries After Transcatheter Occlusion of Patent Ductus Arteriosus With Rashkind Prosthesis

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Changes in left pulmonary artery (LPA) morphology and flow occur after transcatheter patent ductus arteriosus (PDA) occlusion using Rashkind prosthesis. To assess these alterations between April 1992 and August 1995 we evaluated 27 patients with Doppler echocardiography after successful prosthesis placement within 6 months. The patients' age ranged from 1.5 to 16 years (mean 5.49 ± 2.9), weight 9.3 to 51 kg (18.45 ± 8.67). A 12 mm umbrella used in 13 patients. Color Doppler echocardiography showed LPA turbulence in 7 patients (%25.9) while right pulmonary artery (RPA) flow was normal. On PW Doppler evaluation, a mild and statistically significant increase in LPA maximum flow velocity (mean 0.23 ± 0.2 m/sec, range -0.04 to 0.7) was found when compared with RPA ($t=5.90$, $p < 0.0001$).

It is concluded that LPA stenosis can occur secondary to transcatheter PDA occlusion with Rashkind prosthesis, which makes further follow-up necessary.

Two-Dimensional Echocardiographic Morphology in Mitral Valve Prolapse

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In order to classify mitral valve prolapse (MVP) according to two-dimensional echocardiographic morphology, the clinical and echocardiographic findings of 80 patients (50 girls and 30 boys) aged 9 months-19 years (mean 9.7 ± 4.3 , median 10 years) with mitral valve prolapse (MVP) were evaluated.

Based on the parasternal long-axis view, MVPs were classified according to the appearance of mitral leaflets (straightened, bowing, billowing) and the position of the coaptation point of the leaflets with respect to the annular plane; 6 distinct morphological subsets were thus identified. Relations between symptoms, physical findings, ECG, x-ray, echocardiographic findings and the morphological groups were analysed, the frequency distribution of mitral regurgitation in each subset was determined.

Symptoms were more common in the straightened leaflet group ($p=0.02$). There were no significant differences between the morphological groups regarding the frequency of arrhythmia, ST segment and T wave changes on ECG. Left atrial and left ventricular enlargement on M-mode echocardiography were more common in the bowing and billowing leaflet groups ($p<0.02$). The prevalence of mitral regurgitation on CW and colour Doppler echocardiography was 32.1%, 62.9% in the straightened, bowing, billowing leaflet groups, respectively.

Mitral regurgitation, a major determinant of the course and prognosis of MVP, was significantly more common in the bowing and billowing leaflet groups ($p=0.05$), in subsets with superior displacement of the coaptation point ($p=0.002$) and in those showing disruption of leaflet edge apposition ($p<0.0001$).

The Early and Late Results of Postoperative Period in Total Anomalous Pulmonary Venous Return

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We reviewed retrospectively 37 patients with total anomalous pulmonary venous return between Au-

gust 1976 and October 1995 in Hacettepe University Medical Faculty and Institute of Cardiology, University of Istanbul. Their ages were ranging from 9 days to 20 years (mean: 33.4 months) and 22 of them were younger than one year old. Supracardiac type of anomaly in 16 patients, cardiac type in 15, infracardiac type in 3 and mixed types in 3 were detected. Pulmonary hypertension in 16 patients and pulmonary congestion in 14 patients were predominant preoperatively. Some additional cardiac pathologies were determined in 9 patients. Five severely ill patients in neonatal period because of heart failure and pulmonary congestion were intubated preoperatively and underwent emergency operation. Total circulatory arrest under deep hypothermia was used in all neonates and infants and also in patients with infracardiac type anomaly. In older children, a short period of low-flow cardiopulmonary bypass under moderate hypothermia was preferred. The anastomosis between the common pulmonary venous chamber and the left atrium was constructed by transatrially in 7 patients with supracardiac type of anomaly and by posterior approach in the rest of patients. Three patients (8.1 %) were lost in the postoperative early period and 2 patients in the late follow up. We determined anastomotic restenosis in a patient (2.9 %) two years after the operation. Rest of patients (97.3%) were followed up between 2 and 231 months (mean: 5 years). These patients were asymptomatic with a normal growth. As a result we can say that persistent pulmonary hypertension and pulmonary venous obstruction were the main risk factors on postoperative morbidity and mortality. The patients with additional cardiac pathologies and who need preoperative intubation carry a high risk in our series.

Review

Immune and Molecular Pathogenesis in Atherosclerosis

N. Gültekin, M. Ersanlı, E. Küçükateş, S. Üner

Atherosclerosis consists of focal lesions of the arterial intima characterized by cholesterol deposition, fibrosis and inflammation. Local endothelial expression of vascular cell adhesion molecule and chemotactic stimulation by oxidized LDL may be important for the formation in the early stage of the lesion.

During the progression of the lesion, macrophages are transformed into lipid-laden foam a fibrous cap uptake of oxidized LDL, and smooth muscle cells migrate into the lesion to form a fibrous cap around the lipid-rich core. Activated macrophages and T lymphocytes may, by means of their cytokine secretion (interleukin 1, interleukin II, tumor necrosis factor- α , interferon- γ , etc.), regulate genetic expression, foam cell formation, smooth muscle, cell proliferation, and the generation of free oxygen radicals. Cytokines promote angiogenesis, induce morphological and functional alterations in endothelial cells, cause expression of human leukocyte antigen, stimulate cyclooxygenase activity and promote adhesion of polymorphonuclear cells on endothelial cells. Interferon- γ down-regulates scavenger receptor expression and intracellular cholesterol accumulation; it also inhibits smooth muscle proliferation, collagen formation and induces nitric production.

In conclusion, it is considered that the immune response in association with cytokines, in the atherosclerotic plaque plays an important and modulating role in the development of the disease. Further experiments will be necessary to determine the role of interleukin II antagonists, interferon- γ , other cytokines and gene therapy in its regression and treatment.

Case Reports

A Case of Recurrent Myxoma With Seizures

H. Karpuz, P. Vaudens, V. Karpuz, X. Jeanrenaud

A 78-year-old woman with a history of surgical removal of left atrial myxoma, was admitted to the hospital because of seizures. A left atrial mass was diagnosed in her by transesophageal echocardiography. Surgical removal and histologic examination of this mass confirmed a "recurrent" myxoma in this patient, presumably cerebral embolism.

Nonfunctioning Pacemaker Electrode Migrated into Main Pulmonary Artery: Case report

C. Çeliker, M. Ersanlı, N. Yazıcıoğlu, C. Bakay, B. Polat, Y. Yalçınbaş

Pulmonary artery migration of pacemaker electrode is rare. We report a 67-year-old-female patient with retained functionless permanent pacemaker electrode migrated to the main pulmonary artery eleven months after a new pacemaker and lead replacement. She presented with anterior chest pain, and the migrated electrode was detected by chest X-ray. The electrode was removed by surgery without any complication.