

Summaries of Articles

Clinical Investigations

Distribution of Proinflammatory Markers and Their Interrelation with Other Cardiovascular Risk Parameters Among Turks

A. Onat, B. Erer, A. Çetinkaya, Ö. Başar, K. Ceyhan, V. Sansoy, G. Hergenç

In a representative sample population of three Western regions of Turkey, comprising 1046 adults aged 30 or over, acute phase reactants blood fibrinogen and C-reactive protein (CRP) were measured as were blood pressure, anthropometric measures, plasma lipids and lipoproteins; in addition, smoking status and physical activity grade were assessed. Coronary heart disease was diagnosed based on clinical findings and on Minnesota coding of resting electrocardiograms.

Mean age of men and women was similar: 50.8 ±12.6 and 51.2±13.1 years, respectively. No significant difference existed in the genders regarding the means of CRP (geometric, 1.9 and 2.0 mg/L) and of fibrinogen (3.15±1.17 and 3.40±1.16 g/L). The two inflammatory markers were significantly correlated ($r = 0.26$) with each other. CRP concentrations were correlated with the components of the metabolic syndrome X and with all the other measured risk parameters except for smoking status. In men, CRP was correlated in particular with measures of (central) obesity, apolipoprotein B, blood pressure and fibrinogen. As independent determinants emerged for CRP values, age, fibrinogen, waist circumference, total cholesterol, and (inversely) physical activity grade. Independent associations with fibrinogen levels were observed for age, waist-to-hip ratio, CRP quartiles, smoking status and (inversely) physical activity grade.

When mean values in apparently healthy subjects for fibrinogen (3.4 g/L) and CRP (1.86 mg/L) were compared with those in patients with CHD (3.7 g/L and 3.97 mg/L, respectively), CRP ($p < 0.001$) and fibrinogen ($p < 0.05$) levels were higher in CHD patients. Except for a borderline significant association with the second fibrinogen quartile in

men, age-adjusted fibrinogen values were not significantly associated in this cohort with the presence of CHD in either sex. By contrast, CRP was strongly associated. It was concluded that adoption by Turkish people of a healthy lifestyle should include measures toward diminishing chronic low-level inflammation such as maintaining optimal weight and increased exercise.

Key words: C-reactive protein, inflammation, coronary heart disease, coronary risk evaluation, fibrinogen

Echocardiographic and Radionuclide Evaluation of Right Ventricular Ejection Fraction in Children With Pulmonary Hypertension

G. Koçak, S. Atalay, H. E. Tutar, H. Gümüş, A. İmamoğlu

Attention is presently being focused on the importance of right ventricular function in children with pulmonary hypertension (PHT). The aim of this study was to evaluate right ventricular ejection fraction (RVEF) in patients with PHT, and compare the results with the control group. To evaluate RVEF, "single plane area length method" was used for echocardiographic estimation, and multiple-gated equilibrium radionuclide angiography (MUGA) was used for radionuclide evaluation. The study group consisted of 20 children with PHT, aged four months to 16 years (mean 4,0±5,1). All had various types of congenital heart disease with left to right shunts. Results were compared to 20 normal children aged five months to 16 years (mean 4,1±4,2).

Mean RVEF determined by echocardiography was 0,51±0,13 in the patient group and 0,56±0,08 in the control group. RVEF obtained by MUGA was 0,40±0,16 in the patient group, and 0,44±0,13 in the control group. No significant difference existed between patients and the control group for RVEF determined by either echocardiography and MUGA ($p > 0,05$). Although not statistically significant, RVEF was lower in the patient group than in the control group. There was a significant negative correlation between RVEF obtained by

echocardiography and systolic pulmonary arterial pressure ($r=-0,47$; $p<0,05$). These data suggest that a reduction in right ventricular systolic function commenced in patients with PHT.

Key words: Pulmonary hypertension, childhood, right ventricular ejection fraction

The Relation Between ST Segment Elevation Shape and Low Dose Dobutamine Stress Echocardiography and Clinical Course in Early Period of Anterior Myocardial Infarction

A. Karadede, A.V. Temamoğulları, Ö. Aydınalp, M.S. Ülgen, S. Alan, K. İltümür, N. Toprak

Although a relation between magnitude of ST segment elevation and myocardial damage was shown in early period of acute myocardial infarction, such a relation among shape of the ST segment elevation, myocardial damage and clinical course remains obscure. Sixty-two patients with acute anterior MI, in the first six hours of their first heart attack were enrolled for the study. Based on the precordial V3 derivation prior to thrombolytic treatment, the shape of the ST elevation was separated into three groups as concave ($n=26$), straight ($n=24$) or convex types ($n=12$). The relation between the shape of the elevation recorded on admission and both results of low dose (5 and 10 $\mu\text{g}/\text{kg}/\text{min}$) dobutamine stress echocardiography (LDSE) performed ($n=53$) in early period (the sixth day) of infarction and clinical course were investigated. Wall Motion Score Index (WMSI) was evaluated based on a 16-segmented scoring system of which nine segments were supplied by left anterior descending artery (LAD) and points were given for each segment from one (normal) to four (dyskinetic). Basal WMSI and response to LDSE were better in LAD region. Additionally both average akinetic segment number in infarct zone was higher and improvement in these segments were less in convex and straight groups (Concave $3,78\pm 2$ vs. $2,17\pm 2,1$ $p<0,01$; straight $5,15\pm 2,7$ vs. $4,45\pm 2,8$, NS; convex $5,4\pm 2,3$ vs. $4,8\pm 2,1$ NS; basal vs. LDSE). Although only 13% (3/23) of the patients had no improvement in LDSE in Group A ($p<0,05$ v.s. group B and $p<0,01$ v.s. group C), 35% (7/20) of group B and 60% (6/10) of Group C patients were

without improvement in LDSE. Although no relation was found between better left ventricular function (WMSI <2) and shape of the ST elevation in basal evaluation in multiple logistic regression analysis ($p=0,06$), an independent relation was found following LDSE ($p=0,01$, OR 4.5, %95CI 1.3-14.7). There was no in-hospital death in concave group whereas five patients died in either straight or convex group. Arrhythmia occurrence was lower in concave group during this period ($p<0,05$), and exercise capacities were lower. Conclusively, we suggested that there was an increased viability in infarct zone and decreased in-hospital mortality in patients with concave ST elevation on admission. This simple classification would be beneficial to estimate left ventricular functions at discharge.

Key words: Dobutamine echocardiography, myocardial infarction, ST elevation

Coronary Sinus Endothelin-1 Levels in Patients with PTCA and Stent Implantation

H. Bahadır, M. Şahin, O. Sağkan, R. Uçar, O. Yeşildağ

Endothelin-1 (ET-1) is a vasoactive peptide originating from the endothelium and has mitogenic properties. It is the strongest vasoconstrictor substance, and its activation by atherosclerosis contributes to the progression of this process. It was shown that some physical factors such as mechanical pressure and stretch to the vessel wall causes endothelin release.

In this study, the effect of the PTCA and stent implantation on ET-1 release in the coronary artery was investigated. For this purpose, 41 patients who had stable angina pectoris and were candidates for elective PTCA and stent implantation were divided into 2 groups: patients in whom only PTCA (group I, $n=22$) and patients in whom stent implantation was additionally (group II, $n=19$) performed. Just before the procedure and 15 minutes after the last balloon inflation, blood samples were taken from coronary sinus for ET-1 measurements.

In both the PTCA and stent groups significant ET-1 increases were detected after the procedure ($1,64 \pm 0,15$ vs $3,28 \pm 0,39$ pg/ml , $p < 0,0001$; $1,28 \pm 0,13$

vs 2.72 ± 0.24 pg/ml, $p < 0.001$, respectively) which were as great as twice the basal level. The balloon inflation duration, the maximal balloon pressure, the number of inflation, the number of the vessels did not effect the post procedural ET-1 levels. In 7 patients who had complications ET-1 levels increased 3 times as compared to the basal levels (4.2 ± 0.8 vs 1.4 ± 0.2 pg/ml).

In conclusion, ET-1 release increases significantly after PTCA and stent implantation. This increase is more evident if any complication occurs.

Key words: Endothelin-1, coronary angioplasty, coronary stenting

Long-term Clinical and Angiographic Results of Stenting in Coronary Ostial Lesions

E. Babalik, T. Gürmen, M. Gülbaran, S. Öztürk

Coronary ostial lesions are considered unfavorable for percutaneous balloon angioplasty because of low rate of success and high rate of restenosis. Some technical difficulties exist in stenting of this type of coronary lesions, and data about long-term clinical and angiographic follow up is limited after stenting of ostial coronary lesions. We analyzed the success and complication rates and long-term clinical and angiographic follow up results in 56 patients who underwent coronary stenting for 57 ostial lesions. Ten (17,5%) lesions were aorto-ostial and 47 (82,5%) were non aorto-ostial (branch and side branch vessel) lesions. The procedure was unsuccessful in one patient, thus the rate of success was 98,2%. No major cardiac event occurred during in hospital follow-up period. One patient had acute anterior myocardial infarction 9 days after stenting and treated immediately with tissue-type plasminogen activator (t-PA), and later underwent elective coronary bypass surgery. Forty-six of the remaining 55(84%) patients had coronary angiography six months after the procedure. Nineteen (41,3%) patients had angiographic restenosis, and 10 (17,8%) had repeat PTCA for stent restenosis, 5 (8,6%) needed elective coronary artery bypass surgery and 4 (7,1%) treated medically. Six months after stenting, freedom from any cardiac event was 71,4%.

In conclusion, the procedural success rate is high

and angiographic restenosis, target lesion revascularization rates are also high in coronary stenting in our patients with aorto-ostial and nonaorto-ostial lesions. Since in the literature results of stenting in coronary ostial lesions, are scarce, we need large scale randomized trials comparing the results of different kinds of angioplasty devices in coronary ostial lesions.

Key words: Angioplasty, ostial lesion, stent

Catheter Ablation of Anteroseptal, Midseptal and Para-Hisian Accessory Pathways: How Risky?

K. Adalet, F. Mercanoğlu, A. Sezer, K. Özer, M. Meriç, F. Erzenin

Radiofrequency catheter ablation (RFA) of accessory pathways (APs) near the atrioventricular (AV) node may lead to complete AV block and require the implantation of a permanent pacemaker. Various techniques (e.g. jugular approach, stepwise increase of power or temperature) have been proposed to avoid this complication. In this study, the results of RFA using the femoral or vena cava superior approach and stepwise increase of temperature in 36 patients (11 female, 25 male, mean age 30.1 ± 11.7 years) with anteroseptal (AS), midseptal (MS), and para-Hisian (PH) APs (Group I) were compared to those of 215 patients (87 female, 128 male, mean age 37.3 ± 13.9 years) with APs in other locations (Group II). Patients with multiple APs were excluded from the study. There were no significant differences between Group I and Group II with respect to sex distribution, symptom duration, number of administered drugs, RFA duration, total procedure duration, fluoroscopy duration, number of energy deliveries and mean temperature. The success of the procedure were also similar (94% and 96%, respectively). Significantly more patients presented with syncope or presyncope in Group I compared to Group II (100% vs 45%, respectively, $p < 0.001$). Complications of RFA were more frequent in Group I (11% vs 2.7%, respectively, $p < 0.05$): RFA procedure was complicated with permanent complete AV block in a patient with a para-Hisian AP (2.7%) and transient prolongation of PR interval was observed in another patient with an anteroseptal AP (2.7%). None of

these complications occurred in Group II. On the other hand, recurrence was not observed in Group I, but it occurred in 17 (8%) patients in Group II. It is concluded that RFA should be considered in patients with AS, MS or PH pathways if there is a high risk of sudden death or there are severe symptoms since the procedure itself carries a low, but significant risk of complete AV block.

Key words: Ablation, WPW syndrome, septal accessory pathway

Enalapril and Losartan on the Level of Plasma Nitrate in Untreated Essential Hypertensive Patients

H. Ebiñç, M. Cemri, T. Timurkaynak, M. Özdemir, G. Dönmez, F. Ayerden, R. Yalçın, B. Boyacı, A. Çengel, Ö. Dörtlemmez, H. Dörtlemmez

This study was performed to evaluate the effects of enalapril, an angiotensin converting enzyme inhibitor and losartan an angiotensin II receptor antagonist on the level of plasma nitrate in untreated essential hypertensive patients. The study was carried on 28 mild or moderate essential hypertensive patients (9 of them were men, mean age: 46±8 years). After the clinical and plasma nitrate level assessment, patients were randomised to one of the 2 treatment protocols: enalapril 20 mg/d to group I, losartan 50 mg/d to group II. After patients were given antihypertensive treatment for 8 weeks, clinical and plasma nitrate level controls were performed again. Two treatment protocols were observed to decrease the clinical blood pressure meaningfully. With enalapril treatment, the level of plasma nitrate increased from 13.20±4.75 µM/L to 13.71±5.71 µM/L (p>0.05). With losartan treatment, the level of plasma nitrate rose from 14.09±5.21 µM/L to 15.12±8.77 µM/L (difference not significant). Thus both enalapril and losartan treatment were thought to increase the level of plasma nitrate in untreated essential hypertensive

patients. We believe that randomised studies with larger patient populations should be conducted to evaluate the effect of antihypertensive treatment on plasma nitrate level.

Key words: Enalapril, Hypertension, losartan, treatment, plasma nitrate level.

Review

Perioperative Evaluation and Management of Patients With Cardiovascular Disease Undergoing Noncardiac Surgery

M. Ersanlı

Noncardiac surgery is a frequently used procedure in cardiac patients. As both the prevalence of cardiac patients and noncardiac surgery indications are higher in advanced age group, this will be a more frequently encountered problem in the near future consisting that there will be more cardiac patients in the advanced age group.

Unfavourable effects of surgery to cardiovascular system, prolonged operation time, its urgency, severe hemorrhage and volume shifts, neurohormonal and hemostatic changes, changes of body temperature are the main factors of increased complication rate in a patient who undergoes a noncardiac surgery.

Successful perioperative evaluation and treatment of cardiac patients undergoing noncardiac surgery requires careful teamwork and communication between patient, primary care physician, anesthesiologist, and surgeon. Several studies are carried-out in order to reduce the complications, morbidity and mortality in this group of patients and major advances are achieved with perioperative care.

In this article, we reviewed the guidelines and major studies about noncardiac surgery in cardiac patients.

Key words: Noncardiac surgery, perioperative clinical predictors, cardiovascular risk of surgery