

Summaries of Articles

Investigations

Stable Blood Cholesterol But Rising Triglyceride Levels in Turkish Adults

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In 2046 men and women of the cohort of the 1990 nationwide survey on the prevalence of risk factors in Turkish adults was followed up in 1995 including measurement of plasma lipids by the Reflotron apparatus. Though total cholesterol was measured in each, fasting triglycerides were determined in both instances in 1000 participants alone. Differences in paired values were taken into account. More than 8 % of plasma samples were validated in a reference laboratory. Half of the difference of deviation in values between the reference laboratory and that of the Reflotron was adjusted. The cohort was stratified in gender and six age groups, in addition to geographical regions. It was predicted that aging by 5 years would raise the concentrations of total cholesterol by 4.7 and 7 mg/dl and of triglycerides by 0.7 and 8.5 mg/dl in men and women, respectively.

Mean values for the whole male and female cohort of total cholesterol (in mg/dl) rose in the 5 years from 172 to 177 in men and from 178 to 184 in women, while triglycerides increased from 136 to 147 in men and from 116 to 132 in women. Cholesterol mean values in all age groups 20-59 remained within the range of ± 2 mg/dl of the predicted ones.

In women aged 60-69 years concentrations exhibited a slight rise rather than an anticipated fall.

Plasma triglycerides increased globally by 10 mg/dl in men and by 8 mg/dl in women. Except for males aged 20-29 and females aged 50-59 years, substantial rises were observed in all age groups. It is not known - since not measured - whether this was accompanied by a decline in HDL-cholesterol concentrations. This development which may be related to changes in diet and physical activity might have bearing on public cardiovascular health.

Myocardio-protective Effects of Carnitine Enriched Cardioplegic Solutions

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The myocardioprotective effects of L-Carnitine enriched cardioplegic solutions were investigated on 32 patients. It was detected that total carnitine levels of right atrial specimen were decreased at the end of the ischemic arrest in control group where as it increased in the carnitine group, with less lactate production. In carnitine group there were lesser elevations in myocardial creatinin kinase levels when compared to the control group. Myocardial oxygen utilization was two fold higher during the aortic declamping when carnitine was added to the cardioplegic solutions. It was also revealed that cardiac index and left ventricular stroke work index was higher in the carnitine group at the first two hours of aortic declamping in which there was less inotropic requirement.

Serum and Erythrocyte Selenium Concentration Related to Coronary Artery Disease

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As compenent antioxidant protection system, Glutathion peroxidase (GSH-Px) enzyme has a preventive role in atherogenesis via various mechanisms. Selenium (Se) is a cofactor of GSH-px enzyme and its deficiency causes a reduction in the enzyme activity. In our study, possible role of lowered Se levels in development of acute myocardial infarction (AMI) and its effect on the extent of coronary artery disease (CAD) was evaluated.

Serum and erythrocyte Se levels of 16 patients with AMI and 36 patients with CAD, detected via coronary angiography, were compared with 14 patients having chest pain and normal coronary arteries.

Serum Se was 74.29 ± 14.05 mg/L and erythrocyte Se 0.53 ± 0.05 mg/g Hb in the control group. Serum Se was 61.42 ± 15.58 mg/L and erythrocyte Se 0.39 ± 0.08 mg/g Hb in AMI group. Serum Se was 54.21

± 12.26 mg/L and erythrocyte Se 0.44 ± 0.05 mg/g Hb in the single vessel disease. Serum Se was 61.02 ± 20.06 mg/L and erythrocyte Se 0.42 ± 0.09 mg/g Hb in the two vessel disease. Serum Se was 66.71 ± 11.25 mg/L and, erythrocyte Se 0.45 ± 0.08 mg/g Hb in the multivessel disease, measured by atomic absorption spectrophotometer. Serum Se ($p<0.01$), erythrocyte Se ($p<0.001$) levels of the AMI patients, serum Se ($p<0.001$), erythrocyte Se ($p<0.001$) levels of the single vessel disease patients, serum Se ($p<0.02$), erythrocyte Se ($p<0.001$) levels of the two vessel disease patients and serum Se ($p<0.05$), erythrocyte Se ($p<0.02$) levels of multi- vessel disease patients were all significantly lower than the control group. Both the serum and erythrocyte Se levels were not significantly different between patients of CAD with or without AMI ($p>0.05$). Lack of difference led us to the conclusion that the in decrease Se level might be due to the atherosclerotic process, rather than due to the oxidant stress caused by AMI. No significant difference was detected between the Se levels of the patients and extend of atherosclerosis, by means of involved coronary artery (1, 2 or multi-vessel disease) detected via coronary angiography ($p>0.05$). No significant difference was detected between the Se levels of patients with different degrees of atherosclerotic coronary artery involvement (one, two or multi-vessel disease) as assessed by coronary angiography.

Antithrombotic Properties of Nitroglycerin in Patients with Coronary Artery Disease

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This study was designed to test the effects of nitroglycerin on platelet activation and aggregation in 11 patients with unstable angina pectoris and 14 patients with acute myocardial infarction. Intravenous infusion of nitroglycerin was begun at 0.25 ug/kg/min., and was increased to 1 ug/kg/min. by controlling blood pressure. Blood samples for determination of platelet aggregation, (β -TG) and platelet factor-4 (TF-4) before infusion, after 45 minutes and 24 hours. The levels obtained before nitroglycerin infusion were compared with the measurements of 10 healthy persons. These three parameters were high in the patient group ($p=0.0001$; $p=0.0001$). Pla-

telet aggregation was reduced to $80.4 \pm 7.5\%$ ($p=0.0001$) and $85.1 \pm 4.9\%$ ($p=0.0001$) from baseline ($97.7 \pm 3.3\%$) at 45 minutes and 24 hours, respectively; β -TG declined from 54 ± 8 IU/ml to 46 ± 8 IU/ml at 45 minutes of infusion ($p<0.0001$) and to 42 ± 8 IU/ml at 24 hours ($p<0.0001$); PF-4 decreased from 13.7 ± 3.1 IU/ml to 10.8 ± 2.7 IU/ml ($p=0.0001$) and to 9.4 ± 2.3 IU/ml ($p=0.0001$), respectively. These data suggest that therapeutic doses of nitroglycerin can inhibit platelet functions significantly in patients with acute ischemic syndrome. This beneficial effect of nitrovasodilators in acute ischemic syndromes may contribute to the therapeutic value of these agents.

Troponin-T and Creatine Kinase-MB in Detecting Myocardial Injury After Coronary Angioplasty

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Cardiac troponin T (TnT) is a regulatory contractile protein. In a group of recent studies, its detection in the circulation has been shown to be a sensitive and specific marker for myocardial cell damage. The purpose of the present study was to investigate the diagnostic efficacy of the TnT and creatine kinase isoenzyme MB (CK-MB) in patients undergoing successful percutaneous transluminal coronary angioplasty (PTCA) to detect myocardial injury. Study population consisted of 24 patients (3 females, 21 males). Serial blood samples were drawn for measurement of serum TnT and CK-MB before the PTCA and thereafter at 4,8,16 hours. At the same time 12 lead ECG was also recorded. TnT levels >0.2 ng/ml and CK-MB levels >24 U/l were assumed to be an abnormal increase and indicative of myocardial injury. TnT levels >0.2 ng/ml were detected in 15 of 24 patients (62.25 %), CK-MB levels >24 U/l were detected in 6 of 24 patients (25 %). There was no difference between the groups with respect to demographic data or PTCA procedure. Serum TnT and CK-MB levels were more elevated in type C and multivessel lesions. This study demonstrates a very high diagnostic sensitivity of troponin T versus CK-MB in the detection of minor myocardial injury after successful PTCA.

Effects and Safety of Doxazosin in Mild to Moderate Essential Hypertension

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The study was performed to evaluate the antihypertensive effectivity and safety of a new α -1 adrenergic receptor antagonist, doxazosin, in patients with mild to moderate essential hypertension. Twenty patients above 18 years of age and a diastolic blood pressure between 95-115 mmHg under no antihypertensive medication made up the study population. Eleven were female, 9 were male and the mean age was 41.2 ± 11.4 (range: 31-68). Following a 2-week placebo period, they were started on doxazosin, 1 mg/day, and the dose was adjusted to a maximum of 8 mg/day at controls performed by two week intervals. Laboratory investigations involving blood biochemistry, lipid profile, complete blood count and urine analysis were performed both at the beginning and at the end of a 14 week long followup period. Five patients left the study on their own will due to nonmedical reasons. One patient had to be excluded from the study due to severe headache. The remaining 14 patients successfully completed the 14-week followup.

There was no significant difference between blood pressure recordings obtained at entry to the study and at the end of the placebo period ($159.6 \pm 213/103.1 \pm 6.9$ mmHg vs $154.9 \pm 14.5/100.3 \pm 4.9$ mmHg, $p>0.05$). On the other hand, blood pressure values obtained at the 2nd week of doxazosin treatment were significantly lower than those recorded at entry ($159.6 \pm 21.3/103.1 \pm 6.9$ mmHg vs $140.8 \pm 9/90.4 \pm 8.5$ mmHg, $p<0.05$). This antihypertensive effect was preserved during 14 weeks of followup and the blood pressure values recorded at the end of the study were significantly lower when compared to the beginning ($137.2 \pm 9.9 / 88.0 \pm 7.1$ mmHg, $p<0.005$). The mean effective antihypertensive dose was 2.71 ± 1.2 mg/day. No significant change was observed at the pulse rate values recorded throughout the followup period.

No significant difference in any laboratory parameter except fasting blood glucose level was evident at the end of the study. The fasting blood glucose level tended to be higher after the therapy although the difference did not reach statistical significance (88.6

± 11.9 vs 101.4 ± 20.1 mg/dl, $p=0.05$). Total cholesterol, LDL-cholesterol, HDL-cholesterol, triglyceride, apolipoprotein A1 and apolipoprotein B levels did not show any significant difference at the end of the followup period.

The drug had to be stopped due to severe headache in only one patient. Two other patients described mild and spontaneously resolving side effects. No side effects were recorded in the remaining twelve.

In conclusion, this study suggests that doxazosin is an effective and safe agent in the treatment of patients with to moderate essential hypertension.

Effects of Sublingual Administration of Captopril on Parameters of Exercise Test and Neurohormonal Activation in Patients with Stable Angina Pectoris

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A prospective study was designed to investigate the effects of sublingual captopril (C) on parameters of exercise test and neurohormonal activation in patients with stable angina pectoris. The study was performed as randomized, double-blind and placebo-controlled in 31 patients (28 male, 3 female; mean age 55.4 ± 9.4 years) with stable angina pectoris. Coronary angiography and ventriculography were performed in all cases and the patients were classified according to the left ventricular ejection fraction (EF) (EF ≥ 56 %, Group A; EF=50-55 %, Group B; EF=40-49%, Group C; EF<40%, Group D). Following sublingual placebo, basal plasma renin, angiotensin II, norepinephrine (NE) and serum aldosterone levels were measured and a maximal exercise test was performed by modified Bruce protocol. Hormone levels were remeasured immediately after exercise. The same procedure was completely repeated using either placebo or C the next day. Sublingual C administration increased the time to angina ($p<0.001$), the time to 1 mm ST depression ($p<0.01$), maximal exercise capacity ($p<0.001$) and maximal exercise duration ($p<0.001$); decreased maximal ST depression ($p<0.001$), maximal systolic blood pressure ($p<0.001$), and maximal double product ($p<0.01$). Maximal heart rate was not significantly different.

After the maximal exercise test following C administration, the increments of angiotensin II, aldosterone and norepinephrine levels were found to be significantly lower and the increment of the renin level was found to be significantly higher than those of placebo ($p<0.001$). The effects of sublingual C use on exercise parameters were assessed in different left ventricular systolic function subgroups additionally. Delay in the time to angina was found statistically significant in group A. A favorable effect on about all parameters including maximal effort time were observed in groups B, C and D. An increasing favorable effect on maximal effort time and capacity was recognized from group A to group D. There were no adverse reactions related to sublingual C use.

As a result, sublingual administration of C improved the parameters of maximal exercise test and suppressed the neurohormonal activation during exercise. The favorable effects were more prominent in cases with left ventricular systolic dysfunction. We suggest that sublingual C can be used effectively before planned daily activities in patients with stable angina pectoris.

Evaluation of Partial and Complete Atrioventricular Canal Defects in 22 Patients

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Twenty-two children were diagnosed as AV canal defects by echocardiography, at the Ankara University, Pediatric Cardiology Department, between 1992 - 1995. The age range was 3 days to 13 years and the male/female ratio was 1,2. Thirteen patients were diagnosed as Down syndrome by chromosomal analysis. Eleven cases each were classified as incomplete and complete AV canal defects. In the patients with Down syndrome, the most frequent AV canal defect was the complete type (91 %). Ten cases of complete canal defects were classified as Rastelli A, and one case as Rastelli B. Palliative or corrective surgery was performed in 6 patients. Two-dimensional echocardiography is highly reliable in identification of AV canal defects. It is necessary to evaluate the chordal attachments and the valve morphology for classification of these defects.

Cardiac Masses in Infants and Children

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Between 1990 and 1995, 9 patients (4 girls, 5 boys) aged 8 months to 12 years (mean 5.13 years) with intracardiac masses were seen in our Department. Three patients had rhabdomyomas (2 patients with tuberous sclerosis), one patient had a metastatic Wilms' tumor, 2 patients had cardiac hydatid cysts, 3 patients had intracardiac thrombi. Diagnosis was made by two-dimensional colour Doppler echocardiography in all patients, computed tomography was performed in three. The masses were localized in the left ventricle in 5 patients, in the interventricular septum and left ventricle in one, in the interventricular septum and right ventricle in one and in the right atrium in 2 patients. The clinical features were variable, symptoms in 7 patients included back pain, palpitations, dyspnea, superior vena cava syndrome and heart failure; 2 patients were asymptomatic. Two patients underwent emergency surgery, three had elective surgical interventions. Three patients (2 with intracardiac thrombi, one with metastatic Wilms' tumor) died within 6-30 days, 6 patients remain in good condition 2 months to 6.5 years following the diagnosis.

A Case of Transradial Coronary Stent Implantation

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Coronary stent implantation using the conventional percutaneous transfemoral approach is associated with a high rate of femoral vascular entry site complications due to intense anticoagulation needed to prevent thrombosis. Percutaneous transradial approach is effective in reducing the bleeding complications and offers an alternative vascular access site in patients when the transfemoral approach cannot be used.

We implanted a Palmaz-Schatz stent to the proximal left anterior descending artery lesion using the transradial approach to a patient whose both iliac arteries had excessive tortuosity. During the procedure we used 7500 Units of heparin. There were no complications related to the procedure and no subacute occlusion at one month follow-up, in our patient.

Our case is the first transradial coronary stent implantation in Turkey