

Summaries of Articles

Clinical Investigations

Effects of Soy Protein Diet on Endothelial Functions and Lipid Parameters

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Replacement of animal protein in the diet with soy protein is associated with decreased cholesterol levels. However, the effects of soy protein diet on endothelial function are not well known. The aim of the study was to investigate the effects of soy protein diet on plasma lipids and endothelial function parameters assessed by two different methods. Twenty hypercholesterolemic, non-smoker male patients (age 50±12) with a normal body mass index were included. After calculating their daily requirements, a diet with 25-30% of energy from fats, 10-12% from proteins and the rest from carbohydrates was instituted. Sixty percent of the animal source proteins of the diet were substituted by soy. The anthropometric measures, lipid parameters and endothelial functions of the subjects were assessed at baseline and 6 weeks after soy protein diet. Flow mediated endothelium dependent dilatation (EDD) and plasma thrombomodulin (TM) levels were evaluated as endothelial function parameters.

Results: After diet plasma total cholesterol, low-density lipoprotein cholesterol, apolipoprotein B and triglyceride levels decreased significantly ($p<0.001$, $p<0.001$, $p=0.039$ and $p=0.001$ respectively). The mean plasma TM levels were also significantly reduced with diet ($p=0.004$). Studies of the brachial artery indicated a borderline dilatation in baseline brachial artery diameter ($p=0.05$), however the diameter at reactive hyperemia was significantly larger after diet ($p<0.001$) resulting in a significant improvement of EDD ($p=0.002$). Conclusion: Soy protein diet significantly improves plasma lipid profile in patients with hypercholesterolemia. Furthermore, the endothelial function as judged by two different methods (EDD and plasma TM levels) also improve with soy protein diet.

Key words: Soy protein, hypercholesterolemia, endothelial function, thrombomodulin.

Assessment of the Cohort of the Turkish Risk Factor Study with Framingham Risk Function: an Additional Indicator of the High Absolute Coronary Risk Among Turks

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This study aimed at comparing the observed coronary risk of the original cohort of the Turkish Adult Risk Factor Study with that predicted by the Framingham risk function. For this purpose, after exclusion of cases of coronary heart disease (CHD), 1479 apparently healthy participants of the cohort aged 30-74 years at baseline formed the study population who were followed up prospectively for 10 years. The predicted risk was contrasted with the observed 67 coronary deaths and 109 instances of newly developed CHD. Each participant was given points for each risk factor comprised in the Framingham risk score which is devised for predicting fatal and nonfatal heart attacks and angina. Individual risk percentage was computed from the sum of points. According to the risk function, total fatal or nonfatal CHD was predicted in 110 subjects whereas fatal or nonfatal CHD was considered to have developed in 97 men and 79 women in the course of the 10 years. Thus, compared to that anticipated by the risk model, an excess of coronary events was observed by 60% in the total cohort (by 40% in men, and 93% in women).

When 5 categories of almost equal sizes were formed based on the Framingham risk score, the 10-year incidence of composite coronary events were virtually identical to that expected from the Framingham risk model in the two low-risk categories in both genders. However, in those with moderate and high risk, much more events had developed than predicted. The observed excess coronary events in categories with elevated risk was attributed to excess of the absolute risk among Turks compared to Western populations which is not incorporated in the Framingham model, rather than to limitations related to our diagnostic methods. We hypothesized that the low-grade chronic inflammation mediated by the metabolic syndrome plays a greater role in the atherothrombotic process

in Turkish adults than in many other populations and that this element raises our absolute coronary risk.

Key words: Coronary heart disease risk, risk factors, Turkish population

Functions in Patients with Chronic Aortic Regurgitation

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It is well known, that deterioration in left ventricular functions and aortic distensibility occur in chronic aortic regurgitation. A decrease in distensibility of the aorta may contribute to deterioration of the left ventricular functions. But in cases with chronic aortic regurgitation, our knowledge is limited on the effect of aortic valve replacement on aortic functions. The aim of this study was to show the effect of the aortic valve replacement on aortic functions in patients with aortic regurgitation. Method: With this aim, 13 cases (2 women, 11 men, mean age 36.8 ± 6.2 years) who had chronic aortic regurgitation and needed aortic valve replacement were included in the study. One day prior and 48 hours after, surgery standard transthoracic echocardiography was performed in the patients. During the procedure, intraluminal arterial pressure was recorded. Aortic strain, distensibility and left ventricular systolic wall stress were measured.

Results: When compared before and after aortic valve replacement, significant decrease was found in left ventricular systolic, diastolic diameters and systolic wall stress, systolic and pulse pressures after the operation ($p < 0.001$ for all). Aortic strain and distensibility increased significantly after the operation ($p < 0.001$ for both). Before and after aortic valve replacement, significant correlations were found between aortic functions (aortic strain and distensibility) and left ventricular functions (left ventricular ejection fraction, fractional shortening and systolic wall stress). Conclusion: aortic strain and distensibility are decreased in patients with chronic aortic regurgitation. This causes to increase in left ventricular systolic wall stress. Aortic valve replacement not only improves in left ventricular diameters, but also results in increased aortic strain and distensibility. Improving the aortic function after

aortic valve replacement decreases left ventricular systolic wall stress.

Key Words: Aortic functions, aortic distensibility, systolic wall stress

Relation Between ST-segment Elevation Shape and Both Signal-averaged ECG and Arrhythmia in Early Period of Anterior Myocardial Infarction

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Although a relation between magnitude of ST segment elevation and myocardial damage was shown in the early period of acute myocardial infarction, such a relation among shape of the ST segment elevation, myocardial damage and clinical course remains obscure. With this purpose 62 acute anterior MI patients who were admitted in the first six hours of their first heart attack were enrolled for the study to demonstrate the relation between shape of the ST elevation prior to thrombolytic treatment and both signal-averaged ECG values detected in the early period (seventh day) of acute myocardial infarction and clinical course. 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 ($n=12$). There was no statistically significant difference among groups from the points of thrombolytic treatment, end-systolic and end-diastolic volumes. Although both filtered QRS time (FQRS) and low amplitude signals (HFLA) had statistically significant differences in both groups, these were particularly higher in the convex group. In addition root-mean square voltage of the terminal 40 ms of the filtered-QRS (RMS40) values were quite lower in the straight and convex groups. Late potential (LP) positiveness and ventricular arrhythmia occurrence was higher in the convex group. Ventricular LP positiveness incidences were 11% (3/26) in the concave group, 16% (4/24) in the straight and 58% (7/12) in the convex group ($p < 0.001$ vs concave and $p < 0.05$ vs straight groups). We detected that the shape of the ST elevation significant by predicted LP positiveness in multiple logistic regression analysis ($p=0.003$, OR 10.7, %95 CI 2.2-51.7). In conclusion

the straight and particularly convex shape of ST elevation on admission is highly associated with increased LP positiveness and arrhythmia occurrence.

Key words: Myocardial infarction, ST segment, signal-averaged ECG

Relationship Between Mean Platelet Volume and Early Phase Complications in Acute Myocardial Infarction

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It is known that platelets play an important role in the pathogenesis and natural history of acute myocardial infarction (AMI). In this study, we investigated the relationship between mean platelet volume (MPV) and early phase complications in AMI. The MPV were measured in 213 patients with AMI (163 males, 50 females, mean age: 56.7±11.2 years) being admitted within 24 hours after onset of chest pain on admission, on the second and fifth days of infarction. Age- and sex-matched 70 healthy volunteers were taken as controls. The patients were divided into two groups as uncomplicated (group I, n=131) and complicated cases (group II, n=82). Additionally, group II was subdivided into 4 subgroups: group IIa (recurrent angina-reinfarction, n=24), group IIb (severe heart failure-cardiogenic shock, n=41), group IIc (severe arrhythmias, n=34) and group IId (deceased, n=9). Both in group I and II, the MPV was significantly higher than in the control group ($p<0.0001$). When compared to group I, there was a significant increase in the value of MPV measured on admission in group II ($p=0.004$), whereas no significant increase existed in MPV on the second and fifth days of AMI. In the comparison among subgroups, significant increases were found in the values of MPV on admission in groups IIa and IIc ($p<0.002$, $p<0.025$ respectively), whereas no significant difference emerged in groups IIb and IId ($p>0.05$). In conclusion, MPV increases in early phase of AMI. The high MPV measured on admission is related to increased frequency of recurrent angina-reinfarction and severe arrhythmia. We conclude that high MPV in AMI on admission may be a marker for recurrent ischaemic heart events and severe arrhythmia developing in the early

phase of AMI.

Key words: Acute myocardial infarction, mean platelet volume

Reviews

Phytoestrogens and the Cardiovascular System

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Due to some of the unfavorable results of hormone replacement therapy, plant source estrogens, in other words, phytoestrogens have recently received great attention. The major classes of phytoestrogens include isoflavones, lignans and coumestans. Among these the most common and widely investigated is the class of isoflavones. The active components of isoflavones, genistein and daidzein, are similar in structure to estrogen and have selective estrogenic actions.

Soy is the main source of isoflavones. The favorable effects of soy consumption on lipid profile has been known for many years. The theories put forward to explain such an effect are the facilitation of fecal bile acid excretion, the changes in hormone concentrations and the direct effects on hepatic metabolism.

The non-lipid effects of phytoestrogens are currently under investigation. Reduction in platelet aggregation, increased vascular reactivity, antioxidant and antiproliferative effects are the main non-lipid cardiovascular system effects of phytoestrogens. With the addition of recently discovered bone protective role against osteoporosis and antineoplastic effects, phytoestrogens have the potential of being a good alternative to hormone replacement therapy. The aim of the present review was to evaluate the effects of phytoestrogens on cardiovascular and non-cardiovascular systems.

Key words: Phytoestrogens, hyperlipidemia, endothelial functions

Heart Rate Variability

M. Kayıkçıoğlu, S. Payzin

Heart Rate Variability (HRV) which can be defined as the cyclic variations in sinus rhythm, gives information about the sympathetic and

parasympathetic balance thus it is regarded as an indicator of cardiac otonomic tone and cardiorespiratuar system. In selected patient populations, analysis of Heart Rate Variability (HRV) yields important information about sinoatrial responsiveness to autonomic input and mortality risk stratification. Clinical use of depressed HRV has been proved as a predictor of risk after acute myocardial infarction and as an early warning sign of diabetic neuropathy. However, routine application of HRV analysis to cardiovascular medicine awaits further investigation. The purpose of this article is to provide a brief overview of techniques used in analyzing HRV, to review of heart rate signal processing as it relates to autonomic input to the heart and to various clinical cardiovascular conditions, and to summarize the effects of some drugs and interventions on HRV.

Key words: Heart Rate Variability

Internet and Pediatric Cardiology

S. Kula

Internet has much to offer to health care professionals. Medline and related literature databases, are now available on-line. Similarly, electronic versions of journals are also available on-line. Many sites dealing with various aspects of pediatric cardiology are also available. Most are aimed at the lay public, but some sites dedicated exclusively to medical professionals can also be found. The Internet also allows cheap and instantaneous connectivity between health care professionals through e-mail. Moreover, digital copies of images can be exchanged as e-mail attachments. Should an international pediatric cardiology database format be agreed upon, access to patient records, including imaging information, could be further simplified. Such records could potentially be entered into a single central database, in which global results for epidemiology,

diagnostics, surgery, and outcome could be readily studied.

Key words: Pediatric cardiology, heart, internet

Case Reports

Intrapericardial Fibrinolytic Therapy to The Patient With Purulent Pericarditis and Chronic Renal Failure Who Treated With Hemodialysis

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The effective drainage, applied at the true time, is very important to prevent constructive pericarditis which is high fibrin density in intrapericardial cavity, in purulent pericarditis. When pericardial drainage is inadequate in cases with purulent pericarditis, fibrinolytic therapy may be an option. In this case we elected this choice.

Key words: Chronic kidney failure, purulent pericarditis, fibrinolytic therapy.

Large Left Ventricular Myxoma Presenting Coronary Neovascularization

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Left ventricular myxomas are rarely occur. They can cause systemic emboli, obstruction of flow, valvular regurgitation, arrhythmia and sudden death. Diagnosis can be made by two- dimensional echocardiography. Tumor neovascularization from branches of the left circumflex or right coronary artery was observed in patients with myxoma. This report firstly presents a large left ventricular myxoma presenting left anterior descending coronary artery neovascularization in a case underwent cerebrovascular accident due to cerebral emboli.

Key words: Coronary neovascularization, echocardiography, left ventricular myxoma.