

Summaries of Articles

Prevalence of All-cause and Coronary Mortality in Turkish Adults as Assessed by 8-year Follow-up Data of the Turkish Adult Risk Factor Study

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The Turkish Adult Risk Factor Study was initiated in 1990 on a random sample of 3687 adults (20 years of age or over) residing in 59 communities scattered in all regions of Turkey. After a first follow-up in 1995, a second follow-up survey was performed in the Marmara region in 1997 and in the remaining regions in the summer of 1998. This paper reports the findings on the prevalence of coronary and all-cause mortality as well as of new coronary events in the last 3 years of follow-up. Data based on the 8-year follow-up are also presented. Cardiovascular history and physical examination were obtained, and a 12-lead ECG was recorded at rest. New coronary events were defined to include fatal and nonfatal myocardial infarction, newly developed stable angina with or without associated myocardial ischemia. Though the last survey involved 1370 men and women, of whom 34 men and 17 women had died, 8-year cumulative data based on a follow-up of 21160 person-years are described below.

Overall annual death rate was 10.2 per 1000 men and 7.1 per 1000 women in a relatively young cohort the mean age of which moved from 37 to 49 years over the follow-up period. In the age bracket of 45-74 years, overall mortality per 1000 was 20.1 in men and 13.9 in women representing in women - together with those of Ukraine - the highest mortality levels in Europe. Coronary heart disease (CHD) mortality was found 4.1 per 1000 men and 3.4 per 1000 women which rose in the age bracket of 45-74 years to 7.6 in men and 6.0 in women. Rates in men correspond to those of the non-Balkan East European countries while rates in women far exceed even those of Ukraine women. Annual prevalence of new coronary events which comprise fatal coronary events was estimated as 8.4 per 1000 men and 6.2 per 1000 women - rates which also appear high. These observations necessitate much more effective implementation of cardiovascular preventive measures among Turkish adults.

Key words: Cardiovascular diseases, coronary events, mortality, Turkish adults

Exercise SPECT versus Exercise ECG Testing for Diagnosis of Coronary Artery Disease and Identification of Extensive Coronary Artery Disease in Women with Normal Rest ECG

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Previous studies regarding the clinical utility of radionuclide myocardial perfusion scintigraphy in the noninvasive detection of coronary artery disease (CAD) and identification of high risk patients with three-vessel CAD have been performed predominantly in men and also with inclusion of patients with abnormal rest ECG that might have biased the results in favor of exercise perfusion imaging. Thus, we studied 188 women with normal baseline ECG who underwent exercise SPECT thallium imaging and coronary angiography. 45 patients had no CAD; 62 had one-vessel disease; 39 had two-vessel disease; and 42 had three-vessel CAD (3V CAD). Sensitivity of SPECT and exercise ECG was 82% and 52%, respectively ($p<0.001$). Specificity was 73% and 67%, respectively ($p=NS$), whereas the overall accuracy was 80% and 60%, respectively ($p<0.001$). On univariate analysis, women with 3V CAD were older ($p<0.001$), had a lower workload ($p<0.001$), lower heart rate ($p<0.001$), greater ST segment depression ($p<0.001$), increased number of segments with perfusion defects and more multivessel thallium abnormality ($p<0.001$) and increased lung uptake ($p<0.001$) than women with no disease or one or two-vessel disease. Logistic regression analysis identified multivessel thallium abnormality ($p=0.0003$), increased lung uptake ($p=0.01$), exercise heart rate ($p=0.04$) and extent of ST segment depression ($p=0.0006$) as independent predictors of patients with 3V CAD. In conclusion, SPECT is superior to exercise ECG in detecting coronary artery disease in women with normal rest ECG, and it provides incremental information for the identification of women with 3-vessel disease.

Key words: Coronary artery disease, electrocardiography, SPECT.

QT Dispersion in the Risk Stratification of Patients with Unstable Angina: Correlations with Clinical Course, Troponin-T and Scintigraphy

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This study sought to evaluate the potential prognostic usefulness of QT dispersion (QTd) in patients hospitalized with a presumed diagnosis of unstable angina. QTd was calculated at the admission ECG of 62 patients presenting to the emergency department with chest pain at rest. Blood sample was collected for troponin-T (TnT) measurement and all patients had 25-30 mCi of Tc-99m sestamibi injection. SPECT acquisition was performed within 1-6 hours after the injection. SPECT images were scored using 20 segments on a 5-point scale (0=normal, 4=no uptake) and a segment with a score ≥ 2 was considered to have a perfusion defect. The cut-off value of ≥ 0.1 ng/ml was used to define an elevated TnT. All patients had one month follow-up in order to assess cardiac events. Cardiac events occurred in 41 patients (no death, 11 myocardial infarction, 4 urgent and 26 planned revascularization during follow-up). The mean QTd in patients with cardiac events was significantly higher than in those without cardiac events (68 ± 28 vs. 54 ± 1.14 ms; $p=0.01$). When patients were divided into subgroups according to the cardiac events, the mean QTd in myocardial infarction and in revascularization were 90 ± 25 ms and 60 ± 25 ms, respectively. QTd in patients with myocardial infarction was higher than in patients without cardiac events ($p=0.001$). There was no significant difference in QTd between revascularization subgroup and patients without cardiac events. 19 patients with elevated TnT indicating high risk in unstable angina had greater QTd compared to patients with normal TnT (74 ± 29 vs. 56 ± 20 ms; $p=0.008$). Additionally, the mean QTd in 46 patients with perfusion defects was slightly higher than in patients without those (66 ± 27 vs. 53 ± 17 ms; $p=0.03$). There was also a moderate correlation between QTd and the number of perfusion defects ($r=0.31$, $p=0.01$). On the other

hand, most of the high-risk patients who had myocardial infarction or urgent revascularization had QTd greater than the value of 75 ms. In conclusion, the measurement of QTd in patients with unstable angina may be of help in the stratification of patients at high risk for adverse cardiac events, in particular myocardial infarction.

Key words: QT dispersion, SPECT, troponin-T, unstable angina

Lipoprotein(a) and Lipid Peroxide Levels in Patients with Coronary Artery Disease

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In this study, we have determined lipoprotein(a) [Lp(a)] and malondialdehyde (MDA) (a marker of lipid peroxides) levels in patients with coronary artery disease (CAD) and sought to find an association between CAD and these parameters. The study group was composed of 86 patients (31 women, 55 men, mean age 57 ± 10 years) who underwent coronary angiography. The latter revealed CAD in 62 patients (CAD+) while 24 patients were found to have normal coronary arteries (CAD-). There were no significant differences between the two groups with regard to total cholesterol, triglyceride, HDL- and LDL-cholesterol levels. Lp(a) (37.9 ± 29.5 mg/dl vs 22.3 ± 21.3 mg/dl, $p=0.008$) and MDA (1.58 ± 0.47 mmol/ml vs 1.26 ± 0.38 mmol/ml, $p=0.002$) levels were significantly higher in patients with CAD. However, we failed to demonstrate a good correlation between Lp(a) and MDA levels both in patients with and without CAD ($r=0.219$, $p=0.09$).

Total cholesterol and MDA levels of patients with diabetes mellitus were significantly higher than those of patients without diabetes (233 ± 47 mg/dl vs 205 ± 55 mg/dl, $p=0.03$; 1.85 ± 0.51 mmol/ml vs 1.37 ± 0.37 mmol/ml, $p=0.006$; respectively). Lp(a) levels were also higher in diabetic patients but the difference did not reach significance. A correlation between Lp(a) and MDA levels did not exist in patients with diabetes ($r=0.08$, $p=0.34$). Lp(a) levels of diabetic patients with CAD were significantly higher than those of diabetic patients with normal coronary arteries (47.9 ± 32.4 mg/dl vs 16 ± 3.1

mg/dl, $p=0.0009$). However MDA levels of diabetic patients were not significantly increased in the presence of CAD. Lp(a) and MDA levels were also poorly correlated in diabetic patients with CAD ($r=0.02$, $p=0.29$). In conclusion, Lp(a) and MDA levels were shown to be higher in patients with CAD than the patients with normal coronary arteries. Atherogenic characteristics of LP(a) seem to be more important than MDA in diabetic patients with CAD.

Key words: Coronary artery disease, lipid peroxides, lipoprotein(a)

The Effects of Volatile Anaesthetic Agents in Myocardial Repolarization During Induction of Anaesthesia

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QT dispersion may serve as a measure of variability in ventricular repolarization time and may be a means of identifying patients at risk of arrhythmias and sudden death after different clinical settings. The acute responses of QTc dispersion were assessed in 47 American Society of Anesthesiology (ASA) class 1 or 2 patients receiving volatile anaesthetic agents. Anaesthesia was induced with sevoflurane ($n=16$), halothane ($n=17$), or isoflurane ($n=14$), and the inspired concentration increased to reach an end-tidal concentration of 1% to 6%. Recordings of ECG, heart rate, blood pressures were obtained at the following times: prior to induction of anaesthesia, 1 min and 3 min after stable end-tidal concentration, 1 min and 3 min later vecuronium administration, and 1 min and 3 min after tracheal intubation. All the patients studied had normal values of QTc interval and QTc dispersion at rest. All anaesthetic agents significantly increased QTc dispersion compared with baseline values. Both isoflurane and sevoflurane increased QTc interval compared with baseline in contrast to halothane which did not change it significantly. Thus, anaesthetic agents cause myocardial repolarization abnormalities in man in terms of increased QTc dispersion. This may be relevant in the aetiology of arrhythmias in patients receiving anaesthesia without cardiovascular disease.

Key words: QTc dispersion, volatile anaesthetic agents

Reviews

Low Levels of High-Density Lipoproteins in the Turkish Population: A Risk Factor for Coronary Heart Disease

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Low levels of high-density lipoprotein cholesterol (HDL-C) are more common in Turkey than in any other population that has been studied. These low HDL-C levels occur irrespective of regional differences in dietary fat consumption, which significantly alter low-density lipoprotein cholesterol levels. About 50% of Turkish men and about 25% of Turkish women have undesirably low HDL-C levels of <35 mg/dl. Increased hepatic lipase activity (25-30% higher levels compared with American controls and presumably of genetic origin) appears to account for the generalized low HDL-C. In association with high levels of hepatic lipase, secondary environmental and metabolic factors, such as smoking, physical inactivity, obesity, and diets that raise triglyceride levels, could further lower HDL-C. Although many Turks have low total cholesterol levels, the very low HDL-C causes the total cholesterol/HDL-C ratio to be dangerously high. Even at a "normal" total cholesterol level of 200 mg/dl, an HDL-C level of 35 mg/dl results in a ratio of 5.7. In every country studied, this ratio is clearly associated with a high risk of coronary heart disease. Thus, it is necessary to define what is a normal cholesterol level in the context of low HDL-C. Recent data from clinical trials now indicate that treating patients who have low HDL-C and decreasing their total cholesterol/HDL-C ratio are beneficial in both primary and secondary prevention of heart disease.

Key words: Hepatic lipase, high density lipoproteins, statins, total cholesterol/HDL-C ratio

New Directions in Postangioplasty Restenosis

U. Deligönlü

Although the probability of restenosis following successful coronary balloon angioplasty reduced

after stent implantation, it is still an ongoing problem. The results of some drug trials (coumadine, heparin, low molecular weight heparin, hirudin, aspirin, dipyridamole, ticlopidine, platelet glycoprotein IIb/IIIa inhibitors, lovastatin, pravastatin, fluvastatin) are disappointing, and positive studies (probucol, trapidil) were not confirmed by randomized trials. The local application of heparin or urokinase are ineffective in the decreasing the restenosis rate, but local delivery of enoxaparin prior to stent placement reduced restenosis in a study. Gene therapies were not effective in preventing restenosis in humans. The results of the some methods (balloon angioplasty, rotablation, laser angioplasty) for the treatment of in-stent restenosis is unsatisfactory. In one study, stent implantation after coronary atherectomy significantly reduced the restenosis rate. Intracoronary radiation therapy may reduce restenosis. As a result, it may be concluded that none of the above mentioned methods except stent implantation is seen to be effective in preventing restenosis, but radiation therapy may be promising in the near future.

Case Reports

Giant Right Atrial Leiomyoma: Case Report

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A 50-year-old female patient suffering from an intravenous leiomyoma invading the right atrium was reported. Echocardiographically there was an ellipsoid, smooth-edged mass in the right atrium extending inside the inferior vena cava (IVC). The tricuspid valve was normal. During surgery, the intracardiac mass and its extensions to the IVC and the right atrium were partially resected. Because of tight attachments to the vascular wall, extensions in the right renal vein and the second mass inside the distal portion of the IVC could only partially be excised. Bleeding from the lumbal veins and IVC was serious and she died in the early postoperative period because of hemorrhagic diathesis and myocardial failure. The excised mass was

pathologically reported as an intravascular leiomyoma.

Key words: Intravenous leiomyoma, right atrial mass, vena cava inferior

Hypertrophic Cardiomyopathy in a Newborn with Dysmorphic Features: Noonan Syndrome

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Noonan syndrome is an autosomal dominant condition, which is frequently associated with congenital heart diseases. In one fourth of these patients hypertrophic cardiomyopathy was recognised. In this report, we present a newborn with Noonan syndrome who was diagnosed as hypertrophic cardiomyopathy, and we discuss the diagnosis, differential diagnosis and treatment of this highly mortal association.

Key words: Hypertrophic cardiomyopathy, Noonan syndrome

History of Cardiology and Philately Corner

Niels Stensen (1638-1686) and his Contributions to Cardiology and Anatomy

T. Onat

A Danish stamp of Stensen, an anatomist from Copenhagen and his contributions are presented: He described the ductus parotideus, great arteries of the neck, the thyroid and lacrymal glands. Produced experimentally ischemic paralysis of the posterior parts of the body and legs by compressing or tying the abdominal aorta. He pointed out the correct anatomic structure and mode of contraction of muscles and observed that the heart is a muscular organ in his "De muscularis et glandulis observationem specimen". He knew that blood circulates in cycles in one direction by way of valves. He described ectopia cordis with congenital heart disease, a fetus with VSD+ PS in 1672.

Key words: Cardiac anatomy, Niels Stensen