

Summaries of Articles

Investigations

Blood Pressure Levels in Turkish Adults: 8-year Trends, Rate of Treatment, Relationship to Other Risk Factors and to Coronary Disease

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During an 8-year follow-up of the original cohort of the Turkish Adult Risk Factor Study, blood pressure was measured appropriately in 1838 subjects (mean age 48.6 ± 14), and trends were studied after stratifying for sex and age groups. In order to assess the overall change at constant age, based on the previously obtained age-related pressure curve of Turkish adults, an allowance for 8 years of aging in systolic and diastolic pressures by $+4.5/+2.2$ mmHg in men, and $+7.2/+3.4$ mmHg in women was made. Overall net mean blood pressure of the sample population rose by $3.2/1.9$ mmHg in men over 8 years; and while the systolic measurement revealed no significant difference among women, the diastolic value increased by 1.5 mmHg.

Based on 2575 adults comprising the new as well as the original cohort, the prevalence of mild and higher grades of hypertension (≥ 140 and/or ≥ 90 mmHg) was 36.3% and 43.1% for men and women, respectively, suggesting the existence of 5 million Turkish men and 6 million women. Thirty-seven % of hypertensive individuals were estimated to be under drug treatment and that hypertension control was achieved only in one-third of them as defined by keeping blood pressures at normal or mildly hypertensive levels.

Univariate analysis disclosed the waist circumference to have the strongest correlation between systolic or diastolic pressure among men as well as women ($r=0.29-0.41$). Good correlation existed in both genders also between either pressure values and body mass index ($r=0.28-0.36$). A significant association was noted between systolic pressure and coronary heart disease in both genders and between the latter and diastolic pressure in men. Multivariate analysis, however, did not reveal systolic and diastolic blood pressure to be significant independent markers of coronary heart disease.

Key words: Antihypertensive treatment, blood pressure, coronary heart disease, epidemiology, hypertension prevalence, risk factors

A New Electrocardiographic Algorithm to Localize the Accessory Pathway in Patients with Wolff-Parkinson-White Syndrome and Prospective Study of Three Electrocardiographic Algorithms Proposed for the Same Purpose

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The aims of this study were to form a new algorithm under the guidance of radiofrequency catheter ablation (RFA) to localize the accessory pathway (AP) in patients with the Wolff-Parkinson-White (WPW) syndrome using the surface ECG during sinus rhythm, and to test other algorithms, which have been proposed for the same purpose. Sixty-five patients with WPW syndrome, who had only one atrioventricular AP and manifest or intermittent preexcitation on the surface ECG were included in the study. The exclusion criteria were inadequate preexcitation (QRS duration ≤ 100 ms) and an ultimately unsuccessful RFA procedure. The AP was localized to one of the eight predetermined anatomical zones around the mitral and tricuspid annuli. The ECGs were analyzed for QRS complex polarity, delta wave polarity and QRS complex amplitude. Criteria that could distinguish different AP zones were identified. The criteria with highest success were used to form the algorithm. The new algorithm correctly localized the AP in 92% of the patients to one of the seven AP zones. A differentiation between right and left posteroseptal pathways could not be achieved. Three different algorithms proposed by other investigators were tested prospectively with the same ECGs. Although the reported success rates for correct localization of the AP were 87%, 92% and 93%, these algorithms showed lower success rates in our study group (72%, 74% and 62%, respectively). We concluded that our new ECG algorithm is a useful noninvasive tool to guide the RFA procedure; but a prospective study is needed to verify its high success rate. A drop in the

accuracy of our algorithm should be expected in a different group of patients, as we have observed for the other algorithms.

Key words: Wolff-Parkinson-White syndrome, surface ECG, algorithm, radiofrequency catheter ablation

Changes in QT Dispersion Magnitude During Respiratory Phases: Role of Maximum Inspiration and Expiration

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There is still controversy about the reliability and prognostic value of QT interval dispersion because of inter- and intra-observer variability. The present study hypothesizes that QT interval duration and QT interval dispersion are affected by the respiratory phases in healthy subjects. Sixty healthy volunteers (38 men, 22 women, mean age=25 ± 3 years) from the medical staff comprised the study group. Electrocardiograms were recorded by the same technician at a rate of 50 mm/s during normal breathing, maximum inspiration and expiration. QT dispersion was defined as the difference between the maximal and minimal QT interval measurement occurring among any of the 12 leads. Corrected QT (QTc) interval was calculated according to Bazett's formula. There was no significant difference between QTc max interval during maximum inspiration and expiration compared to that during normal breathing (409±22ms vs 417±26 ms, p>0.05 and 412± 18ms vs 417± 26ms, p>0.05 respectively). QTc dispersion during maximum inspiration and maximum expiration were significantly lower than that during normal breathing (36±8 ms vs 44± 9 ms, p<0.001 and 32±7 vs 44±9 ms , p< 0.001 respectively). And QTc dispersion during maximum expiration was also significantly lower than that of maximum inspiration (p<0.01). QT dispersion magnitude is affected by respiratory phases in healthy subjects and decreases during both maximum inspiration and expiration compared to normal respiration.

Key words: QT dispersion, respiratory phase

Aortic Valve Replacement with a Stentless Bioprosthesis: A Report of 21 Cases

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The ideal substitute for the diseased aortic valve is yet to be found. We documented the effects of the Freestyle stentless valve (Medtronic Inc. Minneapolis Minn.) on clinical outcome and left ventricular mechanics. The valve was implanted in 21 patients, age ranging from 62 - 88 years (mean 71 ± 3.2) 16 were male and 5 female. In 14 patients the modified subcoronary technique was used for valve implantation and the other 7 patients received a total root replacement. The mean ischemic time was 90 ± 13 minutes. There were no in-hospital deaths or major complications. Mean stay in the intensive care was 1.3 days and mean hospital stay was 7±2 days. At discharge, 2 patients had trivial aortic insufficiency, and all other patients had perfectly functioning aortic valves. Follow-up period ranged between 4-18 months (mean 11 months). During this period, hemodynamic function improved, gradients dropped slightly (p=ns), and there were no valve-related complications. During the follow-up period, trivial aortic insufficiency seen in two patients at discharge, remained the same.

Consequently, we advocate the use of this type of valve in patients requiring biological valves.

Key words: Stentless valve, aortic valve replacement

Prognostic Significance of Maximal Exercise Testing After Uncomplicated Myocardial Infarction

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To investigate the prognostic significance of maximal exercise testing two months after uncomplicated myocardial infarction (MI). 506 patients (462 men, 44 women, mean age 51.7±9.4, 246 anterior and 242 inferior MI) were followed up for one year. The exercise test criteria for ischemia were typical angina pectoris and or ST depression of 1 mm. Exercise time less than 6 minutes and exercise-induced systolic blood pressure (SBP) increase less than 30 mmHg were other parameters for high risk. Cardiac events (CE) were defined as cardiac death, reinfarction, unstable angina pectoris, a coronary angioplasty or aorto-coronary by-pass

surgery. During follow-up 9 patients (1.8 %) died and 92 (18.2 %) had a cardiac event. The positive predictive values of ECG ischemia, exercise duration, and ASBP for death were found to be 2% 4% and 3%, respectively for coronary events, the positive predictive value of ECG ischemia, exercise duration and Δ SBP were 27%, 34% and 23%, respectively. The negative predictive values of the same parameters were found to be 99% and 89%, 99% and 87%, and 99% and 87%, respectively. When all of the parameters were considered together, the positive and negative predictive values for death and coronary events were found to be 10% and 81%, 99% and 98%, respectively.

It is concluded that, after an uncomplicated myocardial infarction, patients without ischemia and with a good exercise capacity and systolic blood pressure response to exercise need not undergo routine coronary angiography.

Key words: Myocardial infarction, exercise test, prognosis

Effect of Coronary Angiography on Fasting Plasma Lipid Values

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The effect of coronary angiography on plasma lipid concentrations were investigated in 196 patients who underwent elective coronary angiography. After a 12-hour fasting period, peripheral venous blood samples were taken on the day of coronary angiography before the initiation of procedure and 24 ± 1 hours after coronary angiography. All patients underwent coronary angiography and ventriculography by the Judkins technique. Heparin at 5000 IU was administered intraarterially after arterial cannulation and 120 ± 20 cc contrast agent was used during the procedure. Post-angiography levels of plasma total cholesterol [199 ± 3.7 before angiography (BA), 185.4 ± 3.4 after angiography (AA), $p < 0.01$], triglycerides [160 ± 47 BA, 148.4 ± 6.49 AA, $p < 0.001$]; LDL cholesterol [136.8 ± 3.3 BC, 126.7 ± 3.2 AC, $p < 0.05$] and VLDL [32.8 ± 1.5 BC, 29.8 ± 1.4 AC, $p = 0.03$] were significantly lower than the levels obtained before

angiography. HDL cholesterol were lower, but these were not statistically significant (34.2 ± 0.7 AC, 33.9 ± 0.6 BC).

In conclusion, coronary angiography may have significant effects on plasma lipids levels and these effects continue at least 24 hours after the procedure. Consequently, plasma lipid level measurements should be avoided during this period and possibly for a longer period.

Key words: coronary angiography, plasma lipid level

Value of Troponin-T in Assessment of Early Prognosis of Unstable Angina

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Patients with unstable angina are at either low or high risk with regard to cardiac death, myocardial infarction and revascularization procedures. Patients at high risk have poor early prognosis due to symptomatic or silent myocardial ischemia in spite of maximal medical therapy. Cardiac troponin-T is a contractile protein normally absent in circulation. When present in circulation, it is a specific and sensitive sign for myocyte damage. This study sought to evaluate whether troponin-T is a determinant of early prognosis in unstable angina. Forty-five patients of Braunwald class-III unstable angina were included in the study. Troponin-T was measured at admission, and 0.2 ng/mL was taken as the upper limit. Patients were followed up for 3 weeks for the development of cardiac events defined as cardiac death, myocardial infarction, recurrent angina and revascularization. Cardiac troponin-T was elevated in 18 of 45 patients (40%). All patients had normal creatine kinase-MB values. In 17 patients with high troponin-T levels (94%), 6 (33%) developed MI, 10 (56%) had recurrent angina and 6 (33%) underwent revascularization. In 27 patients with low troponin-T levels, only 4 (15%) had a cardiac event.

Patients with high cardiac troponin-T levels were significantly different from patients with low cardiac troponin-T levels in terms of cardiac events during a 3-week follow-up ($p < 0.0001$).

In conclusion, cardiac troponin T measurement is a reliable, simple, inexpensive and noninvasive test which identifies high-risk patients with unstable angina who require early coronary arteriography.

Key words: Unstable angina, troponin-T, early prognosis

Review

Treatment of Ventricular Arrhythmias- New Perspectives

E. Diker

Prevention of sudden death, reduction in total mortality, or at least improvement in symptoms should be the benefits of therapy. Within the last decade, a number of important multicenter, randomized studies have been conducted, which had dramatic outcome to the arrhythmia management. Some trials have changed our concepts about the benefits of suppression of ventricular ectopy. Some trials with amiodarone have provided some evidence about the wide use of this drug. ICD devices have been extensively evaluated in prospective clinical trials. This review tries to highlight the design and results of some of these trials (CAST, ESVEM, GESICA, SWORD, STAT-CHF, CAMIAT, EMIAT, MADIT, CABG-PATCH, AVID, CIDS, CASH). Hence, we will be able to delineate the risks and benefits of arrhythmia therapy more accurately.

Key words: Antiarrhythmic drugs, ventricular arrhythmia, defibrillator

Case Report

Functional and Anatomical Pulmonary Atresia Associated with Ebstein's Anomaly Appearing in the Neonate

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Ebstein's anomaly (EA) appearing in the neonate is fairly rare and frequently associated with functional or anatomical pulmonary atresia (PA). In some of EA having functional PA, spontaneous recovery may be expected while keeping patency of ductus arteriosus by prostaglandins, whereas early palliative surgical intervention is necessary in EA with anatomical PA. Two infants, one associated with anatomical and the other with functional PA, are presented and the importance of differentiating anatomical from functional PA is emphasized in this report. Chest X-ray of the first case, who had severe cyanosis and acidosis without spontaneous respiration early after birth, showed extreme cardiomegaly. Echocardiographic findings were consistent with EA associated with pulmonary atresia. She died in the second day of life in spite of mechanical ventilation and prostaglandin treatment before undergoing surgery. Autopsy findings confirmed the diagnosis of EA with anatomical PA and also revealed the lung to be hypoplastic. In the second case, who had cyanosis and heart failure in the first hours of life, echocardiography demonstrated EA without antegrade flow in the pulmonary artery, but that there was pulmonary regurgitation to the right ventricle. Cyanosis disappeared and attainment of antegrade pulmonary flow was demonstrated by echocardiography after 4 days of prostaglandin infusion.

Key words: Ebstein's anomaly, neonate, functional pulmonary atresia, anatomical pulmonary atresia