

## Summaries of Articles

### Clinical Investigations

#### **The Turkish Atrial Fibrillation Study**

Z. Yiğit, on behalf of the TAFS investigators

Atrial fibrillation (AF), the prevalence of which reaches 6% in those aged over 60 years, carries an increased risk of thromboembolism. We studied the applicability of anticoagulant therapy and the value of aspirin as an alternative therapy in preventing thromboembolic complications in patients with AF in Turkey.

The study included 8 centers from İstanbul, Ankara and İzmir. It started on April 1, 1995, and patient enrolment was terminated on June 1, 1998. The cases were followed-up for at least one year. Seven-hundred and thirty-five patients were included in the study. Two-hundred and thirty-one patients were randomized to aspirin, 223 to coumadine and 231 patients were in the control group. Due to violation of the protocol, 376 cases were eventually excluded from the study. The remaining 359 cases (119 aspirin, 120 coumadine and 120 control) were taken into assessment. The patients in the anticoagulant group received coumadine (Coumadine-Eczacıbaşı) tablets so as to maintain a prothrombin time (PT) 1.5-2 times the normal, an INR between 2-2.5. The aspirin group received 300 mg/day (Coraspin-Bayer). The patients in the coumadine group were followed up every month with PT check, and the ones in the aspirin and the control groups were followed up every 3 months.

Thromboembolism occurred in 7 (5.9%) cases in the aspirin group, in 1 (0.8%) case in the coumadine group and in 12 (10.0%) cases in the control group. With respect to the control group, the frequency of thromboembolic events in the coumadine group was significantly lower ( $p=0.008$ ). No significant difference existed between the frequency of thromboembolic events in the aspirin and the coumadine groups, nor between the control and aspirin groups. There was a 94% decreased risk of thromboembolism in the coumadine group in comparison to the control group. In the aspirin group, though not significantly different, there was a 46% decrease in the risk of emboli as compared to the control group.

There was 1 case (0.8%) of major bleeding each in

the aspirin and the control group; 5 cases of major bleeding (4.2%) was found in the coumadine group.

When the distribution of deaths was analysed among the treatment groups, a total of 25 deaths (6.9%) was observed. Twelve (10.8%) of these were in the aspirin group, 7 (5.8%) in the coumadine group, 6 (5.0%) in the control group. There was no significant difference in terms of mortality among the groups.

Thus, in order to decrease the risk of thromboembolic events in patients with AF, the preferred drug should be coumadine. However, considering that aspirin probably decreased the risk of emboli substantially, aspirin 300 mg/day may well be given to patients with AF when use of coumadine is not feasible or practical.

Key words: Atrial fibrillation, stroke, therapy

#### **Surge in Prevalence of Diabetes Mellitus Among Turkish Adults: Excess Coronary Risk in Subjects with Impaired Glucose Tolerance**

A. Onat, A. Çetinkaya, V. Sansoy, B. Yıldırım, İ. Keleş

In the second follow-up of the Turkish Adult Risk Factor Study 1998, a total of 2575 adults (comprising 1838 subjects of the original cohort and 737 persons newly enrolled) were examined. This report describes the data pertaining to the prevalence of diabetes and glucose intolerance and analyzes relevant changes incurred over the past 8 years by utilizing sex- and age-specific data of official population census or estimates.

Utilized criteria for identifying diabetes were: persons known to be diabetic, a fasting glucose concentration in venous plasma of ( $\geq 140$ , or a post-prandial value ( $\geq 200$  mg/dl. The prevalence of diabetes in the entire cohort was 4.5% and 7.3% in men and women, that of glucose intolerance was 2.6% and 1.6%, respectively. These rates correspond to a prevalence of adult diabetes of 1.66 million (of which 1.05 million in females) - up from 1.0 million in 1990. When adjusted for both population increase and aging was made, namely when compared to the standard 1990 population, diabetes was now more frequent by 13% among men, and by 27% among women. This rapid rise was in keeping with

the observed increase in the prevalence of obesity and of physical inactivity. Annual rise in the total prevalence of diabetes appeared to be an astounding 6.5%. Overall prevalence of glucose intolerance was estimated as 570.000.

While the prevalence of coronary heart disease in the original and new cohort among subjects with normal glucose tolerance was %5.8, it was three-fold (17.2%) in 203 participants with overall glucose intolerance. Elevated coronary risk among individuals with glucose intolerance appeared to be dependent on age-related factors in women, whereas in men part of the excess risk was independent from age. It was concluded that the Turkish community should lend much more emphasis on lifestyle modifications in the strategies pertaining to the prevention of diabetes mellitus.

**Key words:** Coronary disease risk, diabetes mellitus, epidemiology, glucose intolerance, Turkish Adult Risk Factor Study

### **Relations of Left Ventricular Doppler Filling Patterns to Left Atrial Appendage Function and Left Atrial Thrombus Formation in Patients with Left Ventricular Systolic Dysfunction in Sinus Rhythm**

*M. Bilge, B. Eryonucu, N. Güler*

In the present study, we investigated the relation of left ventricular (LV) Doppler filling patterns to left atrial appendage (LAA) function, left atrial (LA) spontaneous echo contrast (SEC) and LA thrombus in patients with LV systolic dysfunction with three specific types of LV filling patterns by transesophageal echocardiography (TEE). Forty-four patients with LV systolic dysfunction in sinus rhythm were included in this study. Patients were divided into three groups according to LV filling pattern: Group I: those with an impaired relaxation filling pattern ( $E/A < 1$ ,  $n=16$ ), group II; those with a pseudonormal filling pattern ( $E/A=1-2$ ,  $n=12$ ) and group III: those with a restrictive filling pattern ( $E/A > 2$ ,  $n=16$ ). Eleven subjects without cardiovascular disease were selected as the controls. All patient groups showed significantly lower LV ejection fraction than the control group ( $p < 0.001$  for each comparison), and LV ejection fraction was lowest in group III. There was no significant difference in the LAA emptying velocity between the controls and group I ( $72 \pm 4$  cm/sec,  $61 \pm 20$

cm/sec, respectively). The LAA emptying velocities were significantly reduced in groups II and III compared with the control group ( $44 \pm 4$  cm/sec,  $35 \pm 14$  cm/sec respectively;  $p < 0.01$ ,  $p < 0.001$ ), but there was no significant difference in the LAA emptying velocity between the groups II and III. The maximal LAA areas were significantly larger in group II ( $5.4 \pm 1$  cm<sup>2</sup>) and group III ( $6.3 \pm 1.5$  cm<sup>2</sup>) than in the control group ( $4 \pm 0.7$  cm<sup>2</sup>) ( $p < 0.05$ ,  $p < 0.001$ , respectively). The maximal LAA areas did not differ between the controls and group I, and between group II and III. With TEE, LA thrombus was present in 2 patients in group I, in 3 patients in group II and 5 patients in group III. There was no significant difference in the occurrence of LA thrombus among the groups. LA SEC by TEE was observed in 5 patients in group I, in 8 patients in group II and in 13 patients in group III. There was significant difference in the occurrence of LA SEC among the groups ( $p < 0.001$ ). In conclusion, LAA dysfunction was noted in patients with LV systolic dysfunction with restrictive and pseudonormal LV filling patterns. Although there was no significant difference in LA thrombus distribution, significant difference was found in LA SEC distribution among three groups according to their LV filling patterns. These results support the idea that marked elevation of LA pressures may reduce LAA function.

**Key words:** Left atrial appendage function, left ventricular Doppler filling pattern, left ventricular systolic dysfunction, echocardiography

### **Unrecognized Lesions in the Left Main and the Proximal Left Anterior Descending Coronary Arteries**

*B. Berkalp, C. Kervancioğlu, D. Oral*

The lesions of the left main (LMCA) and proximal left anterior descending (LAD) coronary arteries are important because these vessels supply a significant amount of the left ventricle. Angiographically detectable lesions may alert the presence of varying degree of atherosclerosis. But it is well known that atherosclerosis can be found despite normal coronary angiogram and sometimes coronary angiography does not allow to visualise the proximal left coronary system. In this study angiographically unrecognized LMCA and proximal LAD artery lesions were evaluated by intravascular ultrasound, plaque characteristics and vascular changes were identified. Of the 145 patients with LAD artery

disease, only 55 (38%) showed silent atherosclerosis in these sites. Within 77 segments, 26 (33,8%) were in the LMCA (2 ostial, 1 mid, and 23 bifurcation lesion), 51 (66,2%) were in the proximal LAD artery (28 ostial lesion). Plaque burden > 40% was found in 10 (38,5%) LMCA, in 20 (71,4%) ostial LAD and in 22 (95,7%) proximal LAD artery segments. They had highly eccentric plaque accumulation. Calcification was uncommon. Soft and mixed plaque compositions were frequently observed in the LMCA and the ostial LAD artery. Fibrous plaques were common in the proximal LAD. Although inadequate arterial remodeling was rarely observed, compensatory vessel dilation was seen in 38,5% of the LMCA and reached up to 47,8% in the proximal LAD lesions.

In conclusion, eccentric plaques and compensatory vessel dilation are the principle features of the unrecognized LMCA and proximal LAD artery diseases.

Key words: Intravascular ultrasound, left main coronary artery, silent atherosclerosis, proximal left anterior descending artery.

### Measurement of Myocardial Fractional Flow Reserve During Coronary Angioplasty in Infarct-related and Non-infarct-related Coronary Artery Lesions

O. Caymaz, H. Tezcan, A. S. Fak, A. Toprak, S. Tokay, A. Oktay

Myocardial fractional flow reserve (FFR) has been demonstrated to be a useful method for determining the physiologic importance of a given coronary lesion. However, the reliability of the FFR measurement is unknown in infarct related arteries (IRA). The aim of this study was to measure and correlate the FFR findings of 14 consecutive patients who had recent acute myocardial infarction (AMI) (Group1) with 14 consecutive patients who did not have AMI (Group2) before and after percutaneous transluminal coronary angioplasty (PTCA). Quantitative coronary angiography (QCA) and FFR measurements were determined both before and after optimal PTCA for all patients. FFR was measured by use of a 0.014 inch guidewire as the ratio of the pressure distal to the target lesion to the aortic pressure taken during the maximal hyperemia induced by intracoronary adenosine. There were no differences between the two groups related to

gender, target artery reference diameter, minimal luminal diameter and percent diameter stenosis of the vessel both before and after PTCA. While FFR findings after PTCA were not different between the groups, they were statistically different before PTCA (Group1 %77.6±5.4, Group2 %63.3±8.4, p<0.001). Although QCA determined percent diameter stenosis was significant (%66.5±10.5) for Group 1, FFR values were higher than 75% (%77.6±5.4) indicating insignificant stenosis. Thus, it was concluded that FFR measurements before PTCA are different between IRA and non-IRA and the cut-off point of 75% may not be valid for IRA.

Key words: Acute myocardial infarction, angioplasty, fractional flow reserve, infarct-related artery

### Predictors for Maintenance of Sinus Rhythm after Cardioversion in Patients with Non-valvular Atrial Fibrillation

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Recurrence of atrial fibrillation (AF) after cardioversion (CV) is determined by various clinical and echocardiographic parameters. The purpose of this study was to determine the clinical and transesophageal echocardiographic (TEE) parameters predicting maintenance of sinus rhythm in patients with nonvalvular AF. One hundred and ten consecutive patients (56 men, 54 women, mean age 69 ± 9 years) who had been successfully converted to sinus rhythm and followed up at least 6 months were prospectively included in the study. Age, gender, the presence of diabetes, hypertension, coronary artery disease or chronic obstructive pulmonary disease, duration of AF, type of CV, configuration of the fibrillation wave on ECG were the clinical and left atrium diameter, left ventricular ejection fraction (EF), left atrium appendage (LAA) peak flow, LAAEF, pulmonary venous systolic and diastolic flows, the presence of LA spontaneous echo contrast, mitral ring calcification or mitral valve prolapses were the analysed transesophageal variables to predict recurrence of AF in 6 months that were evaluated on multiple stepwise logistic regression analysis.

The patients were grouped into those reverted to AF in 6 months and in whom sinus rhythm was maintained longer. Fifty seven (%52) patients were still in sinus rhythm after 6 months from CV.

LAAEF <30% was found to be the only independent variable ( $p < 0.0012$ ) predicting recurrence in 6 months after CV in patients with nonvalvular AF. It is concluded that TEE variables often used to determine thromboembolic risk may also be used to predict the outcome of CV.

**Key words:** Atrial fibrillation, cardioversion, transesophageal echocardiography

### Reviews

#### **QT Dispersion: An Interesting Research Field, or a Useful Diagnostic Tool?**

*A. S. Fak, H. Tezcan, A. Oktay*

QT dispersion defined as the difference between the maximum and the minimum QT interval duration in the twelve lead electrocardiogram has originally been reported as a marker for risk arrhythmia. Although the evaluation of QT dispersion is considered to be inexpensive and easily available, there still exists technical problems related to the methodology. QT dispersion measured either manually or automatically has been shown to be increased in ischemic, arrhythmic and hypertensive heart diseases and in some noncardiac diseases as well. It has also been ascribed to adverse clinical outcome in some certain patient populations. Provided the problems related to the methodology are overcome, the measurement of QT dispersion seems to have the potential to become a useful diagnostic tool in clinical electrocardiography.

**Key words:** QT dispersion, electrocardiogram, arrhythmia

#### **Coronary Heart Disease in Women: Differences of risk factors, clinical manifestations, value of some diagnostic procedures and treatment approaches**

*B. Görenek, A. Birdane, A. Ünalır*

In pre-menopausal women, the incidence of coronary heart disease (CHD) is lower than in men. Although it looks as an advantage for women, unfortunately, most of the time they are not evaluated carefully enough for their complaints which may be related to CHD. We know that, risk factors for CHD, clinical manifestations, value of some diagnostic

procedures and treatment approaches have some differences between women and men. For example, diabetes mellitus is a more important risk factor for development of CHD in women. Specificity of dobutamine stress echocardiography in CHD and the incidence of false positive result to treadmill exercise test is greater in women than in men. An entirely normal maximal exercise stress study, however, retains a good negative predictive value for excluding serious CHD in women. The women with the complaint of angina pectoris undergo cardiac catheterization with lower ratio, and the prevalence of significant lesions in coronary arteries is lower in women with typical angina than in men. Female patients with acute myocardial infarction (MI) have usually more risk factors for CHD and the incidence of developing congestive heart failure is higher. The incidence of mortality due to CHD, complications of coronary artery bypass surgery and its early mortality rate are also greater in women. Women are less likely to receive thrombolytic therapy in the acute phase of MI, even if eligible, and are likely to experience greater delay in being treated. Female patients receiving thrombolysis have a higher rate of mortality and morbidity compared to men.

**Key words:** Coronary heart disease, risk factors, differences related to sex

### Case Report

#### **A Case Report with the Total Occlusion of the Left Main Coronary Artery**

*Ş. Ünal Dayı, H. Akgöz, T. Akbulut, S. Çelik, G. Hobikoğlu, G. Tayyareci, T. Ulusoy*

Total chronic occlusion of the left main coronary artery is a rare angiographic finding in a catheterization laboratory. In these unusual cases, the best therapeutic approach is surgical revascularization. We report a 53-year-old male presenting with non-Q myocardial infarction. Coronary arteriogram showed a total occlusion of the left main coronary artery with good collaterals from the right coronary artery that had a %60 stenosis before the right ventricular branch. The patient underwent successful coronary artery bypass surgery. Postoperative period was uneventful.

**Key words:** Left main coronary artery total occlusion, coronary bypass surgery, non-Q myocardial infarction