

## Summaries of Articles

### Regurgitant Flow Rate Estimation Using Doppler Color Flow Imaging in Children with Mitral Regurgitation

V. Tavlı, Y. Al-Khatib, R.G. Williams, A. L. Wong

Several methods have been proposed for ultrasonic quantification of mitral regurgitation. A new method, Doppler color-flow mapping of a proximal iso-velocity surface area (PISA) from a red-blue aliasing radius has been shown in vitro to be accurate for estimating volume flow rates. Volume flow rate ( $\text{cm}^3/\text{sec}$ ) can be calculated as PISA ( $\text{cm}^2$ ) x aliasing velocity ( $\text{cm}/\text{sec}$ ). Thirtyseven patients aged from eight months to 12 years (mean: 3.1 years) were included in this study. There was a significant correlation between PISA-Doppler and catheterization results ( $r=0.93$ ,  $p<0.0001$ ). The ratio of Doppler color regurgitant jet area to left atrial area correlated well with the angiographic grading of mitral regurgitation ( $r=0.92$ ,  $p<0.0001$ ). In our opinion, the correlation between PISA and angiography was superior to area % and angiography. In conclusion, calculating mitral regurgitant flow rate from PISA provides excellent agreement with angiography and may be useful clinically in estimating the severity of valvular regurgitation.

### Assessment of Doppler Echocardiography in Minimal Mitral Regurgitation: A Comparative Study with Ventriculography

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This study is designed to assess color Doppler echocardiographic parameters in subjects with minimal mitral regurgitation (MR) in otherwise normal heart. Study cases have been selected during a five-month period among 2500 young male with an echocardiographic indication on the basis of subjects' complaints and upon physical examination. Left ventriculography was performed and subjects were dichotomized into group-1 ( $n=30$ ) if there was angiographically MR, and into group-2 ( $n=30$ ) if they are intact. Patients in group-1 were described as to have "true MR" and MR flow in group-2 was named "physiolo-

gical". Doppler echocardiographic variables of true and physiological MR are compared to each other. The following echocardiographic variables were significantly different between group-1 and group-2: 1) the ratio of the max. duration of MR/mean systolic interval in parasternal long axis ( $0.710\pm0.244$  vs  $0.430\pm0.268$ , respectively,  $p<0.0001$ ), 2) the ratio of the maximum duration of MR/mean systolic interval in apical four chamber view ( $0.550\pm0.361$  vs  $0.317\pm0.272$  respectively,  $p=0.007$ ), 3) the peak velocity of the regurgitant flow in parasternal long axis ( $180\pm77$  vs  $120\pm69$   $\text{cm}/\text{sec}$ ., respectively,  $p=0.003$ ), 4) the regurgitant jet area in parasternal long axis ( $0.813\pm0.651$  vs  $0.411\pm0.431$   $\text{cm}^2$ , respectively,  $p=0.007$ ).

The maximal duration of MR/mean systolic time interval  $\geq 0.6$ , regurgitant jet area  $\geq 0.4$   $\text{cm}^2$ , and regurgitant peak velocity  $\geq 130$   $\text{cm}/\text{sec}$ . in parasternal long axis dichotomize the cases into true MR with a predictive value of 76%, 67%, and 63%, respectively.

### Mid-term Follow-up of Patients Following Tricuspid Valve Replacement

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Between January 1980 and January 1996, 620 patients with valvular heart diseases underwent several types of tricuspid valve procedures (De Vega annuloplasty: 483, Kay annuloplasty: 8, implantation of Duran ring: 15, implantation of Puig-Massana ring: 18) associated valvular heart surgery. Of these cases 96 patients (15.5%) received 100 prosthetic tricuspid valves (96 mechanical, 31 biologic). Sixty-five mitral, 21 aortic concomitant valve replacements were also made. Forty-three cases (45%) had previous heart surgery including closed mitral commissurotomy (12), mitral valve replacement (18), mitral and aortic valve replacement (6), repair of ventricular septal defect (VSD: 2), repair of atrial septal defect (ASD: 2), total correction of tetralogy of Fallot (1), and repair of Ebstein's anomaly (2). Mean age was  $35 \pm 11$  years (range 14-56 years), and 20% of the patients were males. In all cases, an annuloplastic technique

was first attempted for the tricuspid valve, but when this was not successful, valve replacement was performed. Nearly in all patients, except congenital cases such as repair of an ASD, VSD or Ebstein's anomaly, tricuspid procedures were accomplished under cardiopulmonary bypass with the beating heart, without aortic clamping. Preoperative hemodynamic measurements of the patients were as follows: PAP  $54\pm 21$ , PCWP  $23\pm 8$ , CVP  $16\pm 5$  mmHg. Atrial fibrillation was present in 95% of the cases. Early (30 days or hospital) mortality was 26%. Eighty-four percent of cases were followed-up from two months to 121 months (mean  $45\pm 22$  months). Four (4%) of the patients required reoperation for tricuspid valve dysfunction (thrombosis 2, degeneration of the bioprosthesis 1, paravalvular leakage 1). During the follow-up period there were six (8.5 %) late deaths. survival rates for 12, 36, and 48 months were 66%, 52%, and 30%, respectively, the median survival being 42 months. Sixty-seven percent of the survivors were in NYHA functional class I and II.

We conclude that, in cases in which repairing is not possible nor successful, tricuspid valve replacement should be performed, keeping in mind that the early mortality rate is high, however, the mid-term survival is barely in acceptable limits.

### **Absence of Frequency Dependent Effects of Intravenous Propafenone at High Rates on Ventricular Action Potential and QRS Duration in Humans**

*E. Diker, M. Özdemir*

Propafenone is an antiarrhythmic agent that blocks sodium channels in a frequency-dependent manner. In this study, frequency-dependent effects of intravenous propafenone on right ventricular action potential duration (APD<sub>90</sub>), QRS duration and ventricular effective refractory period (VERP)/APD<sub>90</sub> ratio were investigated in 10 healthy subjects. Intravenous propafenone caused no significant difference in APD<sub>90</sub> at 4 different pacing cycle lengths (600, 500, 400, 300 ms). On the other hand, a 22-24 % increase in QRS duration was seen after propafenone ( $p<0.05$ ). Decreasing the pacing cycle length from 600 ms to 300 ms caused a 6.4% increase in QRS duration. Compared to baseline, this increase was

not statistically significant ( $p>0.05$ ). VERP/APD<sub>90</sub> ratio increased by 4-13 % after propafenone but no frequency-dependent changes were evident in this ratio ( $p>0.05$ ). In conclusion, intravenous propafenone caused no change in APD<sub>90</sub> but led to an increase in QRS duration and VERP/APD<sub>90</sub> ratio in 10 healthy subjects. Moreover, these changes were shown not to be frequency-dependent at the pacing cycle lengths used in this study.

### **Pericarditis in Childhood; Evaluation of Etiology, Diagnose and Management of 47 Cases**

*N. Özbarlas, O. Küçükosmanoğlu, G. Bingöl, O. K. Salih*

Etiology, diagnose and management of patients with pericardial disease who were diagnosed at the Çukurova University, Department of Pediatric Cardiology, between 1993-1996 were evaluated retrospectively. There were 27 male and 20 female cases ages ranged from seven days and 14 years (mean  $7.23 \pm 4.95$  years). Etiologies of the disease were purulent pericarditis in 12 cases, uremic pericarditis in six, collagen tissue disorders in five, malignancy in four cases, rheumatic fever and hypothyroidism in two each, Down syndrome and post-pericardiectomy syndrome in one each. In six patients, pericardial effusion considered as due to viral pericarditis. Etiologic factor was not diagnosed in two cases. Diagnostic and/or therapeutic pericardiocentesis was performed 31 times to 27 cases. Twelve of these cases were needed surgical intervention after pericardiocentesis (tube drainage, partial pericardiectomy or pericardio-pleural window). Four patients were undergone surgical intervention directly. Percutaneous pericardial catheter drainage was performed at the time of pericardiocentesis in three cases, and intrapericardial drug administration was performed by this way in one case. Nine patients were died; four of them had purulent pericarditis, two had uremic, one had malign pericardial effusion, one had heart failure and one had viral pericarditis.

It is concluded that purulent pericarditis is the most common etiologic reason of pericarditis in region and mortality rate is very high (% 33) because the patients admitted to hospital late. Therapeutic approach is changing usually due to etiology of disease and

clinical status of the patient so any steady protocol could not be established in patients with pericardial diseases. Percutaneous pericardial catheter drainage is an alternative method to surgery in suitable cases.

### **Turkish International Medical Publication Output Continues to Grow Fast in 1995/1996**

*A. Onat*

With the purpose of assessing the progress of the output of medical publications originating from Turkey, these were identified from the Science Citation Index compact disks SCI CD-ROM 1995 and 1996. A weighted credit system was utilized for items published jointly with a foreign or a nonmedical Turkish institution. A total of 1019 and 1260 publications were traced in the two years, respectively, which comprised 471 and 756 articles, reviews and editorials. These increases corresponded to a very fast growth of roughly doubling within two years, a trend which had emerged since 1988 and which led to a rise to 4.3 per mille of Turkey's share of world medical publication output.

Following observations bolstered the nature of the progress: a stronger rise in the number of full-texted articles, extension of similar progress to medical basic sciences, rise of share of institutions in Izmir and smaller cities in Anatolia as well as of non-university hospitals. A total of 70 articles had been published in the field of cardiovascular medicine in 1995 and '96, a prominent surge which represented a world share of 3-4 per mille.

### **Comparison of the Value of Dobutamine Stress Echocardiography and Exercise Stress Test in the Diagnosis of Coronary Artery Disease in Patients with Normal Left Ventricle Wall Motion at Rest**

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Exercise stress testing, dobutamine stress echocardiography and coronary angiography were performed in 90 patients (74 males, 16 females) with suspected coronary artery disease to compare the value of dobutamine stress echocardiography and exercise

stress testing for non-invasive diagnosis of coronary artery disease in patients who do not have basal wall motion abnormality. The sensitivity and the diagnostic accuracy of dobutamine stress echocardiography were higher than that of exercise stress test (91 % and 66 %,  $p<0,05$ ; 88 % and 69 %,  $p<0,05$ ; respectively). This was due to the high sensitivity of dobutamine stress echocardiography in single and two-vessel coronary artery disease (85 % and 54 %,  $p<0,05$ ; 90 % and 55 %,  $p<0,05$ ; respectively). Both proved sensitive in all patients with vessel disease. The difference between the specificities dobutamine stress echocardiography (85 %) and exercise stress testing (72 %) was not statistically significant. There was concordance between the segment which showed wall motion abnormality and the stenotic vessel identified by angiography.

In conclusion, dobutamine stress echocardiography is a reliable method with a high sensitivity and specificity in the diagnosis of coronary heart disease.

### **Penicillin Allergy: Anaphylactic Reactions**

*H. Yüksel, M. Öztürk*

Penicillin, when its allergic reactions are excluded, has no side effects. It is mostly used for the treatment of many infections and is the most inexpensive antibiotic. However, penicillin allergy is a significant medical problem. Many kinds of allergic reactions can be evoked by penicillin. Immediate reactions occur within two to twenty minutes after penicillin administration and can be manifested by diffuse urticaria, hypotension and shock. When the reaction is severe and life-threatening, it is then termed anaphylaxis. Accelerated reactions usually begin between one to seventy-two hours after penicillin administration and are generally manifested by urticaria. Late reactions begin more than three days after penicillin therapy has begun. Late reactions include various types of skin rashes, drug fever, hemolytic anemia, serum sickness-like reactions, renal manifestations and pulmonary manifestations. Among these allergic reactions the most severe problem is anaphylaxis, with its significant morbidity and mortality. Because of fear of anaphylaxis, penicillin injections are administered with some reluctance. In this article cause of the anaphylactic reactions, incidence, clinical course

and detection of the allergic patients will be reviewed.

### **Cardiology on Internet**

*K. Aytemir, A. Oto*

Internet is a huge network composed of world-wide distributed computer networks. Numerous software and any kind of knowledge can be transmitted through Internet. One is able to send to and get messages from any kind of computer system in the world via Internet. Internet is an important knowledge source for many people and institutions. As in other professions, medical knowledge which can be obtained through Internet is getting increased everyday. Not only the amount of knowledge obtained through Internet, but also the number of health care professionals using the Internet rises steeply.

In this article we aimed to provide prominent addresses of Web sites related to cardiology and some information about these Web sites.

### **A Case of Kearns-Sayre Syndrome with Atrioventricular block**

*G. Ahunbay, A. Çelebi, İ. Arslanoğlu, T. Onat*

A 14-year-old male patient diagnosed as Kearns-Sayre syndrome with chronic progressive external ophthalmoplegia, primary retinal degeneration and type I diabetes mellitus was hospitalized because of cardiac involvement. Having atrio-ventricular complete block permanent pacemaker was prophylactically, since the patient showed a rare mitochondrial myopathy, the case is presented and literature is reviewed.