Long term mortality with cardiac resynchronization therapy

G. Anitha, Jestin Joseph, K. Jaishankar, S. Ram Kumar, U. Kalaichelvan, K. Latchumanadas, S. AjitMullasari, M. Ulhas Pandurangi

The Madras Medical Mission, Chennai, India

Background: Randomized clinical trials demonstrated that cardiac resynchronization therapy (CRT) improves survival in patients with congestive heart failure. The data of survival in patients treated in naturalized practice is sparse and no data is available from India.
Methods: The clinical and device data of patients who had undergone CRT implantation at least 5 years before were analyzed.
Results: The follow up data is available from 61 patients out of total 78 patients who have had CRT atleast 5 years before. The mean follow up period was 7.5 (range 5 – 12) years.There were 44 (72%)males. The mean age was 58 ±13 (range 29 – 67) years. None of the patients had AICD indication for secondary prevention of sudden cardiac death and all of them were in NYHA class III. Coronary angiography was normal at the time of implant in 61% (N = 37). Thirteen patients (21%) have died.Nine (70%) patients had ischemic heart disease. On the basis of the clinical records and device data, the cause of death was considered sudden in six (46%) patients. All of the patients who have died had documented AF and renal dysfunction.
Conclusion: Atleast one in five patients with CRT die over a follow up period of 5 years and nearly half of the deaths are sudden. Renal dysfunction and atrial fibrillation are the markers of highest risk.

Valvular Heart Disease (RHD)

Rheumatic heart disease in Kerala – A vanishing entity? An echo Doppler study in 5–15 years old school children (2013–2014)

Bigesh Nair, Sunitha Viswanathan, A. George Koshy

Trivandrum Medical College, Thiruvananthapuram, India

Objective: To study the prevalence of Rheumatic heart disease using echo Doppler in School Children of Trivandrum.
Methods: A total of 2060 students aged 5 – 15 years from five Government (1023) and two private schools (aided) (1037) were screened. Schools were randomly selected. All children and parents in each school were informed regarding the study, consent forms sent home through children. Children with informed written consent from parents were included in study. Subjects were interviewed using a proforma, a detailed clinical examination and echo Doppler study using Philips (HD-11) machine in schools. World heart federation 2012 criteria were used to identify RHD children. Data analysed using SPSS software.
Results: Of all 2060 children, 64.8% were males and 35.2% were females and mean age was 12.6 ± 2.1years. Clinical examination detected murmur in 184 subjects, of which 32 (17.4%) subjects detected to have a heart disease by echocardiographic evaluation. Out of 45 subjects with apical systolic murmur, 5(11.1%) subjects had RHD by echocardiography, clinical prevalence being 2.4/1000 (95%CI 1.1-4.2). Clinical prevalence of RHD (by h/o of rheumatic fever and clinical apical systolic murmur was found in one child) to be 0.49 /1000(95% CI 0-1.4).

All subjects underwent echo Doppler evaluation. Echo Doppler evaluation diagnosed RHD in 12 children, of which 6 children had definite RHD, 6 had borderline RHD by WHF criteria, giving a prevalence of 5.83 /1000 (95%CI 2.5-9.1) school children. Definite RHD by WHF criteria was 2.9 /1000 school children. Anterior mitral valve thickness>3mm and mitral regurgitation waspresent in all. Aortic regurgitation was seen in five school children by echo. Mitral regurgitation was grade 1 in 140 children and grade 2 in 6 children. None had severe MR by echo or hemodynamically significant MR. Of 146 children with mitral regurgitation, 24 children had apical systolic murmur. Anterior mitral leaflet prolapse suggestive of rheumatic etiology with pathological MR seen in 3 children. None of the subjects had commissural fusion and mitral stenosis. Two children had history of acute rheumatic fever on secondary prophylaxis, of which one had history of rheumatic chorea.
Conclusion: It is the first and largest school survey study in Kerala for Rheumatic heart disease using echo Doppler till date. Echo prevalence of RHD was several folds higher compared to clinical prevalence. Our study suggest that RHD prevalence by echo Doppler is less in Kerala(5.83/1000), due to its better socioeconomic living standards, better health indices, availability of prompt medical care and less overcrowding(4.4±1comparedwith 6.4± 2.3, RHEUMATICstudy, Delhi) and higher literacy rates among females.

A Comparative study of ivabradine and atenolol in patients with moderate mitral stenosis in sinus rhythm

K.T. Sajeer, G.N. Rajesh, C.G. Sajeev, B. Cicy, D. Vinayakumar, P. Kadermuneer, V. Haridasan, M. Dolly, M.N. Krishnan

Department of Cardiology, Government Medical College, Kozhikode, India

Background: Beta-blockers are frequently used in patients with mitral stenosis to control the heart rate and alleviate exercise-related symptoms. The objective of our study was to examine whether ivabradine was superior to atenolol for achieving higher exercise capacity in patients with moderate mitral stenosis (MS) in sinus rhythm. We also evaluated their effects on left ventricular myocardial performance index (MPI).
Methods and Results: Eighty-two patients with moderate mitral stenosis in sinus rhythm were randomized to receive ivabradine (n=42) 5 mg twice daily or atenolol (n=40) 50 mg daily for 6 weeks. Trans-thoracic echocardiography and treadmill test were performed at baseline and after completion of 6 weeks of treatment. Mean total exercise duration in seconds markedly improved in both study groups at 6 weeks (298.57±99.05sec vs. 349.12±103.53sec; p=0.0001 in ivabradine group, 290.90± 92.42 sec vs. 339.90± 99.84sec; p=0.0001in atenolol group). On head to head comparison, there was no significant change in improvement of exercise time between ivabradine and atenolol group (p=0.847). Left ventricular myocardial performance index did not show any significant change from baseline and at 6 weeks in both drug groups (49.8 ± 8% vs. 48.3± 7% in ivabradine group, 52.9± 10% vs. 50.9± 10% in atenolol group; p=0.602).

Conclusion: Ivabradine or atenolol can be used for heart rate control in moderate MS patients in sinus rhythm. Ivabradine is not superior to atenolol for controlling heart rate or exercise capacity. Left ventricular MPI was unaffected byeither of the drugs.

Outcome of percutaneous balloon mitral valvotomy in Shahid Gangalal National Heart Centre, Kathmandu, Nepal

N. Shrestha, Y.K.D. Bhatta, A. Maskey, R. Malla, R. Rajbhandari, S. Kansakar, R. Sharma, D.N. Yadav, C.M. Adhikari, D. Prajapati, S. Kesavan, S. Shrestha

Shahid Gangalal National Heart Centre, Kathmandu, Nepal

Background: Percutaneous balloon mitral valvotomy (PBMV) is well established as a safe and effective alternative to mitral stenosis surgery, but only a few small studies have been reported on the procedure. The aim of this study is to assess the safety, efficacy and outcome of PBMV in Shahid Gangalal National Heart Centre, Kathmandu, Nepal.
Methods: 262 consecutive patients who underwent balloon valvotomy for moderate to severe mitral stenosis between July 1st 2013 to June 31st 2014 in our centre were analyzed.
Results: Among 262 patients, 74% percent of the patients were females. Their age range was from 10years to 76years and mean age was 33.2years. 70 (26.7%) patients were in atrial fibrillation; 6 (2%) patients were pregnant; 3 (1%) patients had Cerebrovascular Accident; 12 (4.6%) patients underwent previous surgical or balloon commissurotomy. The procedural success was achieved in 84% patients. The mean left atrial pressure was reduced from 26.8 ± 8.9 mmHg to 15.6 ± 7.2 mmHg ($p < 0.05$).The mean mitral valve area assessed by 2-D echocardiography increased from 0.9 ± 0.17 cm^2 to 1.6 ± 0.28 cm^2 ($p < 0.05$). 49 patients (18.7%) developed moderate to severe mitral regurgitation. There was no mortality related to the procedure.
Conclusion: The results of this study show that PBMV is a safe procedure with good success rate for symptomatic mitral stenosis with low complication rates and good clinical improvement.

Study of effectiveness and safety of percutaneous mitral valvuloplasty for the treatment of pregnant patients with mitral stenosis

Pooja Vyas, Jagjeet, Naveen Sharma, Sibasish Sahoo, Anand Shukla, Jayesh Prajapati

U N Mehta Institute of Cardiology, Ahmedabad, India

Background: Mitral stenosis is one of the most frequently encountered cardiac abnormalities in women of child- bearing age, accounting for nearly 90% of the cases of rheumatic heart disease associated with pregnancy. This study was done to evaluate the safety and effectiveness of percutaneous balloon mitral valvuloplasty (BMV) with severe mitral stenosis during pregnancy.
Methods: A total of 30 pregnant patients were included in the study after detailed echocardiographic evaluation. Clinical and echocardiographic follow-up were done by hospital visits every 3 months after the procedure until delivery and at 6 months follow up.
Results: 14 (46.67%) patients underwent BMV during the third trimester of pregnancy, whereas 16 (53.3%) had the procedure performed in the second trimester. Mean gestational Age at the time of procedure was 25.3 ± 3.93 weeks. 2 (6.6%) were in NYHA class IV, 14 (46.7%) were in III and the remaining 14 (46.7%) of patients were in NYHA class II.19 (63.33%) patients had a Wilkin's score of <8, and 11 (36.67%) had a score of >8. 29(96.3%) patients had moderate or severe pulmonary artery hypertension, with mean Pulmonary artery systolic pressure 68.23±23.28 mmHg.There was no maternal mortality. One patient developed severe mitral regurgitation which underwent successful emergency surgical mitral valve replacement. No patient had cerebrovascular stroke/TIA or any vascular complications. The mean mitral valve area was 0.85+0.16 cm^2 before BMV and increased to 1.60+0.27 cm^2 ($p<0.0001$) immediately after BMV. Peak and mean diastolic gradients had decreased significantly 48 hours after the procedure ($p<0.001$) but remained very much unchanged at 6.72 month follow-up compared with post procedure values .Two patients had an increase in mitral regurgitation by 2 grades. The mean follow up duration was 6.72±0.56 months. 3 (11.11 %) delivered before term.7 (25.91%) babies were having birth weight less than 2.5 kg.
Conclusion: This study further supported the impression that BMV was the procedure of choice to treat pregnant women with rheumatic mitral stenosis in NYHA class II to IV. In this population, BMV was a safe and effective procedure that resulted in excellent immediate and intermediate-term outcomes for mothers and their offspring.

Study of patients with prosthetic heart valve thrombosis

Pavan Roy, Ronak Shah, Saurin Shah, Sanjay Vaghani, Hasit Joshi

U N Mehta Institute of Cardiology, Ahmedabad, India

Background: Prosthetic heart valve thrombosis (PHVT) occurs frequently in developing countries and causes major morbidity and mortality. The study was done to evaluate clinical, laboratory, and diagnostic profile of patients admitted in emergency room with obstructive PHVT and to study efficacy, outcomes and complications of thrombolytic therapy and surgical therapy for obstructive PHVT.
Methods: A total of 82 patients with PHVT in form of acute or subacute dyspnoea (<1 month) or embolic phenomena were enrolled and confirmed with either transthoracic or trans oesophageal echo and cine fluoroscopy and were followed up for 2 years.
Results: 29.27% patients were adequately anticoagulated on admission while 70.73% patients were not. 97.6% cases involved mitral while 2.4% cases involved aortic prosthesis. 94% cases had normal left ventricular function on admission, and 91% cases had moderate to severe pulmonary artery hypertension. Treatment option was chosen on basis of clinical characteristics, thrombus load, affordability, patient's and surgeon's preference. 67 (81.7%) patients were treated with thrombolysis by streptokinase (88%) or urokinase (12%), and 12(14.6%) patients undergone surgery, 3(3.6%) patients undergone surgery after failed thrombolysis. In thrombolysis group, complete success rate was 67.16%, mortality rate was 14.92 %, recurrence rate at 2-yr follow up was 11.94%, while in surgery group complete success rate was 92.3%, mortality rate was 7.7%, recurrence rate at 2-yr follow up was 23.07%.
Conclusion: Compared to surgical therapy, thrombolysis in patients with PHVT was found to have higher mortality and complication rates but with lower recurrence rates of valve