Table. Documentation of HF medications use from any outpatient encounter in patients with EF ≤40% by various subgroups.

Medications (any use)	Men [N= 1225]	Women [N= 3679]	<65 years [N= 11874]	≥65 years [N= 3949]	Receiving care in a practice with EMR [N=15726]	Receiving care in practice without EMR [N=214]	History of MI [N= 2758]	No history of MI [N= 13182]
ACE-I or ARB n, (%)	4232(34.5)	1025(27.9)	3804(32.0)	1418(35.9)	5197(33.1)	60 (28.0)	1408(51.1)	3849 (29.2)
Beta blockers n, (%)	4381(35.7)	1069(29.1)	3949(33.3)	1486(37.6)	5407(34.4)	43 (20.1)	1454(52.7)	3996 (30.3)
ACE-I/ARB and beta blocker n, (%)	3768(30.7)	879(23.9)	3366(28.4)	1273 (32.2)	4630(29.4)	17 (7.9)	1342 (48.7)	3305 (25.1)

ACE-I: angiotensin converting enzyme inhibitor, ARB: angiotensin receptor blocker, EF: ejection fraction, EMR: electronic medical record, HF: heart failure, MI: myocardial infarction

A decade with heart transplantation – Single centre experience

K.M. Cherian, A.G. Narayanaswamy

Frontier Lifeline Hospital & Dr.K.M. Cherian Heart Foundation, Chennai, India

Background: Heart transplantation is being done at Frontier Lifeline Hospital & DR. K.M. Cherian Heart Foundation, Chennai since 2004. So far 41 heart transplants have taken place till date.
Methods and Results: A vast majority 80% of the transplant recipients were male. A majority i.e 46% of the transplant recipients were in the age group of 41 – 60 yrs and 36% of the transplant recipients are in the age group of 21 – 40 yrs and 17% were in the age group 0 -20 yrs old.

The major cause for cardiac transplantation is Dilated Cardiomyopathy in 65% of the patients, Ischemic Cardiomyopathy in 17% and the rest were diagnosed as Restrictive Cardiomyopathy, Hypertrophic Cardiomyopathy and Cardiac Tumor.

A vast majority 85% of the transplant recipient hearts were taken from the hospitals in Chennai through ambulance (road) and the remaining 15% of the hearts were taken from outside Chennai through flight & ambulance (Vellore, Madurai, Bangalore, Coimbatore).

Majority of the transplant surgeries were done by Bicaval technique. Immunosuppressant protocol started with induction in 50% of patients. Immunosuppressants used were cyclosporine 70%, tacrolimus 30%, mycophenolate 100% and prednisolone 100%.

No endomyocardial biopsy was done, evaluation of rejection is done by ECHO criteria only. The causes of death among post transplant patients were mostly infections, especially fungal in 90%, late rejection occurred 50% of transplant patients, early renal failure in 70%, Anemia in 10%, complete heart block in 1% and infection of urinary tract in 10% of patients.
Conclusion: Heart transplantation is here to stay. After changes in our strategies of induction therapy and modification of immunosuppression, our survival rates have improved.

ECG changes after heart transplantation – Single center experience of a decade

A.G. Narayanaswamy, S. Anandan, A. Johnson, K.M. Cherian

Frontier Lifeline Hospital & Dr.K.M. Cherian Heart Foundation, Chennai, India

Background: Frontier Lifeline Hospital & DR. K.M. Cherian Heart Foundation, Chennai has done maximum number of Heart Transplants in India to our knowledge. The study reviews the static and dynamic ECG changes seen in 41 heart transplantation patients done in our center.
Methods & Results: ECG changes post transplantation can be divided into two groups.

Fixed ECG changes which persists with the patients all through his life. These fixed ECG changes appeared first time after heart transplantation. These changes were right bundle branch block in 26% of patients, left bundle branch block in 10.52% & Sinus tachycardia 5.26%, right axis deviation in 10.52%, left axis deviation in 5.26%, poor R wave progression in 18.4%, Prolonged PR interval 5.26%.

Dynamic ECG changes occurring anytime during post heart transplantation which were of benign prognosis. There were VPC's especially VPC's with LBBB morphology. LAE occurred usually after 1 year of heart transplantation in 18% patients.

ECG changes major prognostic implication were junctional tachycardia 2%, prolonged PR interval 8%, prolonged QTC interval 4%, decreased in QRS amplitude of ECG's which portended a bad prognosis 20%. Subsequent in size of QRS amplitude meant a better prognosis. This is perhaps the largest number presented to our knowledge with Indian patients.

Diagnostic issues in DCM: A proposal for universal definition based on LV end systolic dimension

Venkatesan Sangareddi, Arun Ranganathan, Sundar Chidambaram

Madras Medical College, Chennai, India

Background: Dilated cardiomyopathy (DCM) is a common clinical cardiology problem. Still, there is no uniform definition for this entity. One popular definition for DCM is based on following parameters (1)LVEF $\leq$ 45% (2) fractional shortening $\leq$ 25% and (3) LVEDD $\geq$ 112 % predicted value corrected for age and body surface area. By tradition we use EDD to define LV dilatation but hemodynamic principles would suggest LV ESD may be ideal to define DCM as it is less dependent on preload. Further if MR is associated it can confound LVEDD.
Methods: In this context, we analysed the relationship between LV ESD, EDD, EF% and the impact of treatment on these parameters. 25 patients with DCM who were attending our OPD were the subjects of the study.

Results: Male female ratio was 4:1 and age group (24-58y). The mean ESD was 63 (56-78) Mean EDD was 50 (46-54). However at the mean ESD of 50 mm the EDD was quiet variable between (58-72mm). We observed EDD to scatter much from the mean and ESD showed less variation. The LVEF was linearly correlating with both EDD and ESD. Severe LV dysfunction (< 25 %) was more related to larger ESDs. When mitral regurgitation was present ESD were better correlated with LV dysfunction. The impact of intensive medical management on LV dimension was also studied in 5 patients. The regression of EDD was more rapid than ESD .An empirical reduction > 5mm in ESD was considered significant. It was achieved only in two, while EDD regression was documented in all. Functional class improvement and 6 minute walk test showed a positive trend only in patients whose ESD regressed.
Conclusions: We conclude LVESD is a more scientific parameter to diagnose DCM than LVEDD. It is also a better index to assess and follow-up these patients. In our series, a mean LVESD of more than 50 mm predicted all significant DCMs .We suggest there is a need for a larger study on this issue. We may universalize the definition of DCM based on LVESD rather than LVEDD.

Is the pleotropic effect of ranolazine is due to its antioxidant action?

Janapati Ramakrishna, M. Jyotsna, D. Seshagiri Rao

Nizams Institute of Medical Sciences, Hyderabad, India

Background: Ranolazine is a unique anti anginal drug with undefined mechanisms of action. In the present study we were aimed to identify the role of ranolazine in improving left ventricular function by various echocardiographic parameters and to identify its effect on a unique oxidative stress marker Malonaldehyde in patients with post myocardial infarction left ventricular dysfunction who underwent revascularization by percutaneous interventions.
Methods: Prospectively one hundred (100) cases and forty (40) controls with LV dysfunction were recruited in this study with 6 months of follow up and all baseline and demographic parameters, clinical features and symptomatology with blood chemistry parameters were collected for all patients. All patients underwent detailed echocardiography at baseline and at 6 months and serum Malonaldehyde levels were also analyzed at baseline and 6 months. The echocardiographic parameters studied were ejection fraction [{LV volume in end diastole (LVEDV) - LV volume in end systole (LVESV)}/ LVEDV}, fractional shortening ((LVEDd-LVESd) / LVEDd expressed as a percentage – d is dimension) and peak mitral annular velocity (degree of movement of mitral annulus during systole – PMAV) by Doppler. Malondialdehyde (MDA) is one of the most frequently used indicators of lipid peroxidation. We used plasma MDA levels to know the degree of oxidative stress. MDA concentration will be determined by using the method described by Draper and Hadley based on TBA reactivity. Normal Range of MDA is 3.60 ± 0.90 nanomole/ml . Controls received standard medical therapy alone after PCI where as cases, in addition, received 500 milligrams of Ranolazine twice a day for 6 months. All Echocardiographic parameters were reassessed after 6 months and malonaldehyde concentrations were repeated. Minitab 16 version is used for statistical analysis.
Results: Male: Female ratio was 3.4:1 in cases and in controls. The mean age of cases was 56.8 ± 9.6 yrs in cases and 55.1 ± 12 yrs in controls. Basal clinical demographic features and risk factors are comparable between cases and controls. After 6 months of Ranolazine therapy there was a statistically significant improvement in EF{(46.1±10.5) to (48.32±9.63%)} and {(44.2±10.8)to (43.85±8.38%)}(p=0.008) by diameter and volume [(43.8±9.3) to (46.72±9.34ml)] and [(41.8±9.52) to (42.55±9.1 ml)] p=0.018) in cases and controls respectively in comparison to baseline and there was improvement in MAV [(9.5±2.1) to (9.79±1.84)] and [(8.8±1.8) to (8.65±1.8)] (p=0.001) in cases and controls respectively indicating the positive remodeling effects of drug on LV parameters Plasma MDA levels also showed improvement in cases than in controls. MDA at 6 months in cases was decreased from 3.6 nanomole/dl to 3.4±0.8 nanomole/dl where as in controls increased 3.8 to 3.9±0.7 nanomole/dl. Analysis of variance (ANOVA) was performed to check whether there is any significant difference between the basal values, 6 months control & with drug. It can be inferred from the study that the effect of Ranolazine on left ventricular remodeling in obstructive coronary artery disease patients is highly significant (p=0.001) and has the potential to reduce the risk considerably.
Conclusions: Peak Mitral velocities can be used to follow the cases in clinical practice to know the improvement in LV contractility like standard EF. There is significant improvement in EF in cases when compared to controls at 6 months, reconfirming the results from the PMAV analysis. There is reduction in oxidative stress levels in cases than controls at 6 months, may be possible mechanism of action of ranolazine induced positive LV remodeling.

Risk stratification of women with peripartum cardiomyopathy at initial presentation: A dobutamine stress echocardiography study

R.V. Venkata Rao, G. Ramesh, D. Seshagiri Rao, O. Sai Satish, L.S.R. Krishna, M. Adithya

NIMS, Hyderabad, India

Background: Peripartum cardiomyopathy is a rare disorder effecting women in their prime years of life. There appears to be an initial high-risk period with 25% to 50% of women dying within the first 3 months postpartum. Early risk stratification and prognostication are, thus, crucial. However, only limited data are available.
Objectives: We sought to determine the prognostic use of inotropic contractile reserve on risk stratification and prognostication of women with peripartum cardiomyopathy.
Methods: In all, 10 women (mean age 20.7 years) with peripartum cardiomyopathy and severe left ventricular (LV) dysfunction (mean LV ejection fraction [LVEF] 27.3 + 6.5%) were studied. Of these, 8 underwent dobutamine stress echocardiography at baseline and a follow-up resting echocardiogram at a mean of 3.6 + 0.9 months after initial presentation. Resting and peak inotropic contractile reserve, and follow-up LVEF, were computed.
Results: The mean LVEF improved significantly from baseline (27.3 + 6.5%) to maximal inotropic contractile reserve (52.6 + 11.2%) (P _ .0004) and at follow-up (54.2 _ 14.3%) (P _ .006). Importantly, LVEF at maximal inotropic contractile reserve and at follow-up (3.6 months) did not differ significantly. The mean LVEF at maximal inotropic contractile reserve correlated well with the follow- up (LVEF R _ 0.79). However, the baseline LVEF did not correlate with follow-up LVEF.
Conclusions: In patients presenting with peripartum cardiomyopathy, inotropic contractile reserve during dobutamine stress