patients having dilated and GHLV with significant left ventricular dysfunction without documented CAD before. EF% was computed by Simpson's method. Epidemiological data and details of risk factors were studied. CAG was done in all patients. Both femoral and radial access taken. Treatment plan was modified after CAG and viability study results depending upon the CAD status. Follow up results at the end of four month were analyzed.
Results: Out of 30 patients with dilated and GHLV with severe left ventricular dysfunction, majority of patient (13) belong to age group 40–49 years (45%) 21 patients had normal CAG (60%) and 5 patients had significant CAD (20%). A total of 3 patients underwent CABG and 1 patient had undergone angioplasty. Only 2 patients developed mild renal dysfunction and improved on follow up.
Conclusions: CAD was seen in 20% of patients with dilated and GHLV. CAG is safe even up to LVEF of as low as 20%. The triad of low EF, significant CAD and viable myocardium provides favorable prognosis. Mild CAD needs optimized medication.

Limiting factors for optimal medical therapy of patients with heart failure

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Angiotensin-converting enzyme (ACE) and beta blockers are the drugs which decrease mortality and increase longevity in patients with heart failure.
Aims and objects: The incidence of heart failure in India is increasing and it affects relatively younger patients. Present study aims to identify the limiting factors in giving optimal medical management in patients with heart failure.
Subjects and methods: This prospective descriptive study was done at Kerala Institute of Medical Sciences Trivandrum, over a 2 years period from 1st June 2012. Three hundred consecutive patients with NYHA class 3 or 4 with various etiology of heart failure were identified and then all treated patients were analyzed.
Results: Of the 300 patients, 69% (n – 208) were males and 31% (n – 92) were females. Below 70 years there was male predominance of heart failure but after the age of 70 there was female predominance.
In our study 94.6% (n = 284) of patients received loop diuretics, mainly frusemide 55.6% (n – 167) and torsemide 39% (n – 117). Thiazide diuretics were used infrequently. Metalazone was used in 8% (n – 24) of patients with loop diuretics when renal failure was present. Potassium sparing diuretics, spiranolactone were used in 45.6% (n – 137) of patients and eplerenone in 9.3% (n – 28). Only 34% (n – 104) of patients received ACE or ARB, of which 23.6% (n – 71) were on ACE inhibitors). ARBs were used by 11% (n – 33) of patients who were intolerant to ACE inhibitors, mainly due to dry cough. ACE inhibitors could not be used due to hypotension in 34% (n – 103) of patients and renal failure in 31% (n – 93) of patients. Beta blockers could be used only in 43% (n – 130) of patients because of hypotension in 60% (n – 102), bronchial asthma in 20% (34), bradycardia in 15% (25), and chronic obstructive pulmonary disease in 5% (n – 9) of patients.
Conclusion: The mainstay in the management in heart failure today is ACE inhibitors and beta blockers. We found limitations in using ACE inhibitors due to comorbidities like renal failure and hypotension. Beta blockers could be used only in 43% of patients. Even when the cardiac failure was long standing persistence of contraindications limits the use of ACE/ARB and beta blockers.

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Outcome study in patients with ST-segment elevation myocardial infarction (STEMI) and multivessel disease (MVD) undergoing primary or staged PCI

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Background: Patients of STEMI with MVD are at higher risk of heart failure, cardiogenic shock and associated with 2 time's higher mortality during hospitalization. The aim of the study was to compare the outcome of culprit vessel only PCI and multivessel PCI during the index procedure or staged in patients with STEMI and MVD.

Methods: This was a prospective observational study carried out at a single tertiary care centre of north India. Sequential patients who presented with STEMI and at least 1 or more lesions ≥70% in a major epicardial vessel other than the infarct-related artery were included. Patients who underwent primary PCI or PCI after thrombolysis were included. Patients were assigned to 3 different strategies: culprit vessel angioplasty-only (COR); staged revascularization (SR); and simultaneous treatment of non-IRA (CR).
Results: A total of 109 patients of acute ST elevation MI were enrolled during a period of 6 months. The mean age was 55.38 ± 10.0 years, 84 (77.0%) were men. The COR group included 48 (44%) patients, the SR group 44 (40%) and the CR group 17 (16%). The elective PCI in the SR group was performed on average 58 ± 20days after the initial PCI. After a mean follow-up of 6 months, 9 (8%) patients died, 3 (2.6%) from cardiac causes. Throughout the follow-up, 32 (30%) patients experienced at least 1 MACE, 14 (45.0%) in the COR group, 8 (25.0%) in the SR group and 10 (30%) in the CR group, $p < 0.001$. The incidence of inhospital death, repeat revascularization and re-hospitalization was significantly higher in the COR group (all $p < 0.05$), whereas there was no significant difference in re-infarction among the 3 groups. A total of 2 patients (1 each in the SR and CR group) received both a re-PCI and a subsequent CABG. Survival free of re-PCI was worse in the COR group compared with both the CR ($p < 0.001$) and the SR group ($p < 0.005$), whereas it was similar between the CR and SR groups ($p < 0.467$). Mortality was more frequent in the COR group although it did not reach statistical significance. The COR group showed a tendency for a worse overall survival compared with the other groups, without reaching statistical significance ($p < 0.151$).
Conclusion: Culprit vessel-only PCI was associated with highest rate of long-term MACE compared with multivessel treatment. Patients scheduled for staged revascularization experienced a similar rate of MACE to patients undergoing simultaneous treatment of non-IRA.

Outcome of intra aortic balloon pump support in patients with cardiogenic shock during index hospitalization – NIMS experience

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Intra aortic balloon pump (IABP) is an important short term LV mechanical assist device in patients with acute LV dysfunction and cardiogenic shock of varying etiology like acute MI, acute myocarditis, acute valvular regurgitation secondary to infective endiocarditis etc. Recently published 1ABP-SHOCK II trial showed that IABP in acute MI setting in Intensive Coronary Care Unit (ICCU) does not have any mortality advantage. In this study, we have studied the outcome of patients who underwent IABP insertions in our hospital due to various indications.
Aims and objective: To study the outcome of patients who underwent IABP insertion in ICCU settings.
Material and methods: We retrospectively analyzed the data of patients who received IABP insertion in our ICCU due to various indications during January 2014–December 2014. We studied the clinical details, indications of IABP insertion, complications and their outcome. The outcome was noted in terms of all cause mortality in ICCU, all cause mortality during or after surgery during index hospitalization and survival till discharge.
Results: During the above mentioned period, 35 patients underwent IABP insertion out of which 26 (74.29%) were male, and 9 (25.71%) were females. Mean age of study population was 56 years. 33 (94.29%) patients came with acute STEMI, 1 (2.86%) had myocarditis and 1 (2.86%) patient had acute severe MR secondary to infective endocarditis. Out of 33 patients with STEMI, 17 (51.52%) patients had cardiogenic shock due to pump failure, 6 (18.19%) patients had post MI acute VSD, 4 (12.12%) patients had acute ischemic severe MR, 2 (6.06%) patients had refractory ventricular arrhythmias and 4 (12.12%) patients had refractory angina despite full medical antianginal support.
17 (51.52%) patients had altered renal function in terms of increased blood urea and serum creatinine before IABP insertion. Average duration of IABP insertion was 2.3 ± 1.2 days. During IABP insertion, 9 (52.94%) patients developed leucocytosis, 3 (17.65%) patients had anemia (1 required blood transfusion), 3 (17.65%) patients had thrombocytopenia. Out of 17 patients who had deranged renal function, 13 (76.47%) patients continued to have renal dysfunction and 4 (23.53%) patients improved. However, 8 (47%) patients developed new onset renal dysfunction on IABP. 8 (22.86%) patients on IABP developed puncture site complications (3 had hematoma, 2 had limb ischemia and 3 had CVA). However except for one patient with hematoma who required BT, all others were managed conservatively. Out of 35 patients, 20 (57.14%) patients died during index hospitalization (14 before surgery and 6 after surgery). 14 (40%) patients died in ICCU before they could have been operated (pump failure-10, MI + VSD-3, MI + MR-1). One patient of myocarditis was managed conservatively. Remaining 14 patients underwent surgery. During post surgery stay 6 (17.14%) patients died (3 CABG patients, 2 CABG + VSD repair, ICABG + MVR). Out of 17 patients with deranged renal function on admission, 14 (82.35%) died.
Conclusion: Cardiogenic shock in acute MI setting continues to have high mortality despite IABP support. Patients with impaired renal function on admission are at particularly at higher risk for mortality.

Left ventricular assist device (LVAD) as destination therapy in end stage heart failure – First Indian report

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Introduction: Left ventricular assist devices (LVADs) were originally developed as a temporary bridge to heart recovery and then *approved as bridge to Heart Transplant for End stage heart failure* patients falling in INTERMACS category 1, 2, and 3. Successful outcomes with these indications justified usage of LVADs as destination therapy. We report our initial experience on a series of 9 patients implanted with LVAD as destination therapy who were either unsuitable for transplant or due to non-availability of suitable heart when patients were sick or as patient's choice with 4 months to 3 years follow-up.
Patient profile: The hospital records of 11 patients implanted with LVAD between Nov 2012 and Dec 2014 were retrospectively analyzed. There were 8 males and 3 females with age ranging from 26 to 51 years (mean – 47 years). 2 models of LVADs were implanted – HEARTMATE–II (Thoratec-Axial Flow) in 3 patients and HEARTWARE (HVAD – Centrifugal flow) in 8 patients. Heart Mate 2 (infra-diaphragmatic pocket) was chosen for body weight more than 70 kg and HEART WARE for low body weight patients (intrapericardial pocket, smaller device).
Basic diagnoses and clinical condition: Out of 11 patients 4 had ischemic cardiomyopathy, one had recent anterior myocardial infarction with recurrent VT and LV dysfunction, one had severe valvular aortic stenosis with severe LV dysfunction and other 3 had dilated cardiomyopathy with severe heart failure. Other 2 patients