wherever applicable. Our study tried to point out its implication in intermediate stenosis and how it is more decisive than software derived measurement (QCA) in a real world scenario.
Procedure: Total 27 patients (age 62.77 ± 11.39 years) who received FFR for intermediate stenosis, were included in this study. All patients had evidence of ischemia either as stable angina (56.26%), unstable angina (33.33%) or post MI angina (7.41%). Hypertension (74.07%) and diabetes mellitus (29.63%) are most prevalent risk factors present within patient group. In 85.19% cases, patients have multi-vessel disease. Total patient group is subdivided into left alone (70.37%) and stented (29.63%) as per FFR cut off value (0.8) and both were kept under stringent medical management with optimal antiplatelet and statin therapy. Mean follow-up period was 18 months and primary outcome was recorded in reference to TLR (target lesion re-stenosis) or MACE (major adverse cardiac event).
Result: In 18 months follow-up, patients of both subgroup emerged quite well in outcome of the procedure as only 2 TLR (7.4%) have identified one from each sub-group. In both the cases, HTN and DM are concomitantly present as risk factors.
We observed that there is statistically highly significant difference in FFR score between two sub groups (0.88 vs. 0.75, $p < 0.001$), while this is non-significant in QCA score (0.66 vs. 0.71, $p = 0.08$) in respective sub groups.
Both left alone sub-group and stented sub-group showed good outcome (94.74% and 87.7%) in respect to disease free life and Kaplan–Meier analysis for survival also corroborated the same as it predicted excellent survival in both left alone sub groups (0.9444; CI: 0.706–0.994) and stented sub-group (0.888; CI: 0.506–0.994).
Inference: FFR is effective tool in deciding hemodynamically non-significant epicardial coronary artery stenosis with similar outcome as compared to global PCI outcome. Moreover, this is proved to be much superior to QCA score in judging effectiveness of the management strategies and avoiding unnecessary coronary stenting.

Electrocardiographic and Holter Study for immediate and mid-term incidence of conduction disturbances after transcatheter perimembranous ventricular septal defect device closure with Amplatz duct occluders

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Background: Trans-catheter closure of perimembranous defects with the asymmetric device has been controversial due to a high incidence of atrioventricular conduction disturbances. The use of Amplatz duct occluders in carefully selected patients may reduce this complication.
Aim: To evaluate the immediate and mid-term incidence of AV conduction disturbances following transcatheter device closure of perimembranous ventricular septal defect device (PMVSD) using Amplatzer Duct Occluders.
Methods: Twenty-one patients with perimembranous VSD with significant left-to-right shunt (assessed by left ventricular dimension Z scores) were selected for trans-catheter closure. Patients with weight <10 kg or with defects within 4 mm distance from the aortic valve, or with large defects (size greater than the aortic annulus) were excluded. The size of the device was chosen based on the trans-esophageal dimension of the defect at the LV end (2 mm larger device size for ADO 1 and 1 mm larger for ADO II). Sixteen patients were available for follow-up, of which 13 had their defects closed with the ADO I device and three with the ADO II device. Patients were followed up clinically and with electrocardiography and trans-thoracic echocardiography at 1, 6, and 12 months. Holter monitoring was performed in all patients at six months.
Results: The mean age of the patients was 10.2 ± 9.2 years, and the mean weight was 23.6 ± 15.06 kg. The mean defect size (at the LV end) was 4.02 ± 0.98 mm. The mean follow-up period was 12.09 ± 1.92 months. The procedure was successful in all 21 patients, with complete closure of the defect by 24 h as assessed on TTE. No patient developed significant aortic regurgitation. One patient had device (ADO II) embolization to the left pulmonary artery within 24 h. The device was retrieved percutaneously and the defect was closed successfully with ADO I device of a larger size. One patient developed transient RBBB on table, which reverted spontaneously allowing successful completion of the procedure with no AV blocks thereafter. No patients developed AV blocks in the peri-procedural period. In 16 patients who were followed up, all were asymptomatic on follow-up. None developed AV conduction disturbances on ECG or Holter examination.
Conclusion: In carefully selected patients with small to moderate perimembranous VSDs, transcatheter closure using the ADO I and ADO II device can be considered to be a safe and effective alternative to surgery, with no AV conduction blocks observed at mid-term follow-up. Longer follow-up with a larger study population is desirable.

Study of short and intermediate term clinical outcomes of patients with protected and unprotected LMCA stenting

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Background: Significant unprotected left main coronary artery disease occurs in 5–7% of patients undergoing coronary angiography (CAG). This study has focused on safety and efficacy of LMCA stenting to determine whether it provides a true alternative to CABG.
Materials and methods: From July 2013 to February 2015, 50 patients underwent LMCA stenting. LMCA stenting was performed in patients with following criteria (1) Patients with LMCA stenosis more than 50% and evidence of myocardial ischemia and who denied CABG as revascularization procedure. (2) Patients with significant ostioproximal lesion of LAD or LCX, who are planned to be treated with LMCA to LAD or LMCA to LCX stenting. (3) Patients with bail out LMCA stenting. (4) Stenting of unprotected LMCA stenosis in selected patients.
Results: Mean age was 53.14 ± 9.60 years. 18 patients who underwent LMCA stenting presented with STEMI, 9 (18%) had NSTEMI, 10 (20%) had unstable angina and 13 (26%) had chronic stable angina. 6 patients had protected LMCA and the rest had unprotected LMCA. On CAG, 16 (32%) patients had ostial LMCA lesion, 12 (24%) had mid LMCA lesion, distal LMCA was diseased in 6 (12%). In emergency situation, 2 bail out LMCA stenting were done for treatment of LMCA dissection. 22 (44%) patients had LMCA stenosis less than 50%, 6 (12%) had stenosis between 50 and 70%, 19 (38%) had 71–90% stenosis and 3 had more than 90%. 42 (84%) patients had low syntax score, 6 (12%) had intermediate and 2 (4%) had high syntax

score. Only LMCA stenting was done in 22 (44%) patients, LMCA TO LAD stenting was done in 22 and LMCA TO LCX stenting was done in 6 (12%) patients. DES were used in 35 (70%) cases while BMS were used in 15 (30%). Mean stent diameter and length were 3.53 ± 0.41 mm and 19.27 ± 7.89 mm, respectively. Out of 20% patients who underwent check CAG, 8% had significant ISR for which they underwent TLR. 8% mortality was observed.
Conclusion: LMCA angioplasty with stent implantation is a safe procedure in selected patients.

Intracoronary nicorandil mixed with contrast through a thrombus aspiration catheter after initial failed aspiration in the infarct related artery vessel reduces no flow/slow flow during primary angioplasty with late presentation

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Aims: The exact cause and management of no flow/slow flow remains elusive till date and the incidence of no flow increases as the duration of door to balloon time increases in primary angioplasty. One of the main reasons for this complication is clot embolization to distal vessels due to too much manipulation of an organized clot by catheter and balloons. If after one or two attempts of thrombosuction the flow in the culprit vessel does not improve, then we try to place the aspiration catheter as distally as possible and infuse 1–2 mg of nicorandil solution diluted with 50% of contrast solution. This modification has two advantages, the distal vessel is well delineated, the extent of the lesion can be assessed well and the whole clot can be entrapped by appropriate sized stent establishing Thrombolysis in myocardial infarction (TIMI) III flow. Secondly locally delivered high concentration of nicorandil in the infarct vessel reduces coronary spasm and protects from ischemic reperfusion injury when the vessel opens up.
Methods and results: Between March 2013 and March 2015, 30 STEMI patients with thrombotic total occlusion of arteries during primary angioplasty were retrospectively analyzed. The results of using this novel method of infusing intracoronary nicorandil in the distal culprit vessel through a coronary thrombus aspiration catheter (number of patients 16) were compared to those patients without the use of this method (number of patients 14). Mean age of presentation was 57 ± 8 years, more than half of the patients were males (60%) and the majority was anterior wall myocardial infarction (50%). The culprit vessel was left anterior descending artery LAD in the majority of cases (50%) right coronary artery RCA (30%) and the rest (20%) were left circumflex artery. The average window period of presentation was 10 ± 2 h. 14 patients were in cardiogenic shock and intra aortic balloon pump (IABP) was used in all these patients. In all MI patients, thrombus aspiration catheter was used, and Gp2b3a inhibitors were used in 10 cases. In 12 out of 16 patients, TIMI III flow and good myocardial blush were achieved by using this innovative approach. Repeated thrombosuction by aspiration catheters or predilatation of the thrombotic lesions yielded adequate flow and good myocardial blush in only 5 out of 14 cases ($p = 0.03$). In the first group, where intracoronary nicorandil was given, 2 out of 16 patients succumbed, while in other group 4 out of 14 patients died at the end of 30 days ($p = 0.27$).
Conclusions: Our initial analysis revealed that use of this novel concept of infusing intracoronary nicorandil mixed with contrast beyond the totally occluded culprit vessels in acute MI patients helps to achieve better myocardial perfusion during primary angioplasty with improved survival outcomes. However, larger scale prospective multifactorial adjusted, randomized controlled studies are required to confirm our preliminary findings.

Totally occluded SVG and radial artery grafts: Is there a subset where angioplasty and stenting would help?

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Introduction: Angioplasty and stenting (PCI) gives good results for diseased Saphenous Vein Grafts (SVG) but is disappointing in occluded grafts, primarily owing to "clot clogging of the tributary-lacking conduits". In fact, PCI is considered a contraindication in totally occluded SVGs. However, recently occluded grafts could have a better chance of good result with PCI; we report a small series of such cases.
Case report: Four patients, all male, who underwent CABG surgery more than a decade ago (10.5–19.5 years) presenting with Non-ST elevation Myocardial Infarction (NSTEMI). Two patients underwent CAG elsewhere and were referred here for SVG angioplasty for critical 90% stenosis in the proximal graft to OM and RCA, respectively. Two others underwent CAG in our center and had critical proximal graft stenosis (one SVG to OM and the other was radial artery graft to OM).
All underwent transfemoral procedure. Initial angiography shots revealed proximally occluded grafts. The time interval between CAG and admission for PCI was 3–14 days. In view of continuing anginal symptoms, absence of other disease to account for the symptoms, awareness of prior anatomy of SVG and disease, and quite short history after possible total occlusion, it was decided to go ahead with PCI of the occluded grafts. Minimally invasive "primary PCI-like" technique was used in all and was successful and uncomplicated. Drug Eluting Stents were used. Slow-flow and no-flow were not encountered in any. Post PCI, patients had good symptomatic relief.
Conclusion: Even though PCI is considered a contraindication for totally occluded SVGs, there is a subset of recently occluded grafts, which respond to PCI with good outcomes. Use of "primary PCI-like" techniques helps in preventing or minimizing slow-flow and no-flow.

Use of 5 F vs. 6 F guide catheter by left transradial approach for coronary intervention in diabetic population

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Aims: Transradial approach is more than a default technique and access of choice for coronary procedures because of patient comfort and less access site bleeding. Left radial approach is better than right radial approach in terms of catheter manipulation and more patient comfort. Operator's "learning curve" is a factor to achieve this technical superiority. Guide catheter size and type play an important role in achieving the procedural success in radial approach. The aim of this study is to compare 5 F vs. 6 F guide catheter in left radial approach for coronary intervention (PCI) in diabetic population performed by a single operator to avoid operator bias.
Methods and results: This is a single center and exclusively single operator randomized study including diabetic patients more than