Interventional Cardiology

Catheter directed thrombolysis in the management of proximal lower limb deep venous thrombosis – A prospective study with 6-month follow-up.

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Background: Catheter-directed thrombolysis (CDT) with assisted mechanical thrombolysis is the standard of medical care for proximal deep vein thrombosis (DVT). We studied the immediate and intermediate (six months) safety and effectiveness of CDT in patients with proximal lower limb DVT.
Methods: Thirty consecutive patients aged between 20-70 years with proximal lower limb DVT formed the study group. CDT was done with streptokinase infuse through a catheter kept in the ipsilateral popliteal vein. Un-fractionated heparin (UFH) was given along with streptokinase. Mechanical thromboaspiration using guiding catheter was performed in addition to thrombolytic therapy. After 6 months, post-thrombotic syndrome (PTS) and deep venous patency were assessed by using Villalta scale and duplex ultrasound, respectively.
Results: Thirty patients with proximal lower limb DVT were treated with CDT. Mean age of the study patients was 41.7 +/- 15 years. Mean duration of illness was 13.3 +/- 12 days. The mean duration of thrombolysis was 4.5 +/- 1.3 days. Grade III (complete) lysis was achieved in 10 (33%) and grade II (50%–90%) lysis in 20 (67%) of patients. Patients with significant residual lesion in grade II lysis following CDT underwent percutaneous transluminal angioplasty alone (12/20) or venous stenting (8/20). All patients improved clinically following CDT or assisted CDT. Four patients (13%) developed pulmonary embolism during course of hospital stay and among them 2 (6.5%) patients died. Eleven patients (37%) had minor bleeding or hematoma at local site, and 7 (23%) developed anemia requiring blood transfusion and 4 (13%) patients had thrombocytopenia. After 6 months, iliofemoral patency was found in 20 (72%) and PTS was seen in 6 (21%) patients. Two (6.5%) patients died during follow-up due to nephrotic syndrome and carcinoma breast.
Conclusion: CDT and conventional manual aspiration thrombectomy is an effective treatment for proximal lower extremity DVT with good short and intermediate outcome.

Outcome of venous stenting following catheter directed thrombolysis for acute proximal lower limb venous thrombosis: 1-year follow-up

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Background: Catheter-directed thrombolysis (CDT) with assisted mechanical thrombolysis is standard of medical care for proximal deep vein thrombosis (DVT). Functional outcome of venous stent placement for the management of acute iliofemoral DVT following CDT, remain undefined. The purpose of this study was to assess immediate and long term outcomes among patients treated with venous stenting following CDT in patients with proximal lower limb DVT.
Methods: Thirty consecutive patients aged between 20-70 years with proximal lower limb DVT formed the study group. CDT was done with streptokinase and un-fractionated heparin (UFH) infusion. Patients with residual venous obstruction and/ or large clot burden were treated further with venous angioplasty and/ or stenting. After 12 months, post-thrombotic syndrome (PTS) and deep venous patency were assessed by using Villalta scale and duplex ultrasound, respectively.
Results: Thirty patients with proximal lower limb DVT were treated with CDT. Patients with significant residual lesion following CDT underwent percutaneous transluminal angioplasty alone (12/20) or venous stenting (8/20). We studied 8 (5 female and 3 male) patients with 9 (3 left and 6 right) limb involvement and 13 stent (7 balloon expandable and 6 self expandable) placement. All patients improved clinically immediately following venous stenting. One patients developed pulmonary embolism during course of hospital stay. One patient had stent restenosis and one patient died due to carcinoma breast during follow-up. Only one patient developed PTS.
Conclusion: Deep venous stenting is a safe and effective mode of treatment in proximal lower limb DVT with high long term patency rate.

Catheter directed thrombolysis along with mechanical thromboaspiration versus anticoagulation alone in the management of lower limb deep venous thrombosis – A comparative study

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Background: Catheter-directed thrombolysis (CDT) with assisted mechanical thrombolysis is now considered as the standard of medical care for deep vein thrombosis (DVT).
Rationale: The study was to describe the immediate & long term (six months) safety and effectiveness of CDT in patient with lower limb DVT compared with the routine anticoagulation alone.
Methods: All 12-85 years old patients with recent (0-8 weeks) DVT were included. In CDT group, thrombus was aspirated mechanically and streptokinase was given along with unfractioned heparin (UFH). After 6 months, deep venous patency and post-thrombophlebitic syndrome (PTS) was assessed by using duplex ultrasound and Villalta scale, respectively.
Results: Among 51 patients with completed data, 25 patients were allocated additional CDT given for a mean duration of 108+/-32 hours and 26 patients were allocated standard treatment alone. Grade III (complete) lysis was achieved in 37%) and grade II (50%–90%) lysis in 63% of patients. Patients with partial lysis underwent percutaneous transluminal angioplasty and/ or venous stenting. After 6 months, iliofemoral patency was found in 20 (80%) in the CDT group vs. 7 (23%) in anticoagulation alone group ($p<0.01$). PTS

was seen in 5 (20%) in the CDT group vs. 19 (77%) in anti-coagulation alone group ($p<0.01$).
Conclusion: We conclude that CDT and conventional manual aspiration thrombectomy is an effective treatment for lower extremity DVT. Streptokinase infusion can be safely given up to 6 days. As addition of UFH can cause thrombocytopenia, so daily monitoring of complete blood counts is needed during CDT.

First thoracic artery coronary steal syndrome post coronary artery bypass surgery

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Background: Recurrence of the symptoms post bypass are commonly seen if there is stenosis of the bypass vessel itself , Left internal mammary artery (LIMA) or Saphenous Venous Graft(SVG), of the vessel supplying it (Subclavian artery) or compromise of blood flow due to a large branch arising from the main vessel (Lateral Thoracic artery). Coronary subclavian steal syndrome (CSSS) is caused by retrograde blood flow through the internal mammary artery graft.

Coronary steal due to a large first thoracic artery which is a branch of the internal mammary artery is not well known or documented in literature.
Methods: We present a series of cases of coiling of the large thoracic artery as therapeutic option for Coronary steal syndrome.
Results: We present case reports of four elderly post coronary artery bypass (CABG) patients who underwent first thoracic artery coiling. All patients were similar in the baseline demographic characteristics with LIMA to LAD graft. Two different techniques were used for the procedure, for two patients the multipurpose catheter was used for the deployment of the coil and the rest two underwent the procedure with the use of a microcatheter. The occlusion of these artery resulted in improvement of the symptoms.
Conclusion: Coronary subclavian steal syndrome (CSSS) is a rare but well known risk entity after coronary surgery caused by retrograde blood flow through the internal mammary artery graft.

We propose this approach as a possible alternative strategy in patients with internal thoracic artery steal due to a large ITA branch

Left main stenting registry

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Background: Several studies have compared the treatment effects for left main disease between coronary stenting and coronary-artery bypass grafting (CABG). Various metaanalysis and present guidelines have revealed the significance of syntax scores and anatomical location in left main artery stenosis for determination of Major adverse cardiac events (MACE) .However, debate still persists over the best treatment regarding long-term outcomes of these two interventions for patients with left main coronary artery disease. The aim of the study was to examine the demographic parameters, presentation, immediate and long term outcomes of stenting of left main coronary artery stenosis at out centre.
Methods: Our ongoing study has presently evaluated 100 patients in our centre with left main coronary artery disease who underwent stent implantation between June 2011 and to date. We compared demographic parameters, SYNTAX scores, anatomic conditions associated with left main artery stenosis and adverse outcomes (death, Q-wave myocardial infarction, or stroke; and target-vessel revascularization) in patients with left main artery stenting.
Results: Our results of demographic analysis revealed majority of the patients with left main artery stenting to be males with age group between 51-60 years. Among the risk factors, hypertension, diabetes and dyslipidemia were found to be significant. Out of 100, stenting of unprotected left main was performed in 90 patients. Syntax scores were low in 70 intermediate in 19 and high in 11 patients. Anatomical location of left main stenosis was ostial in 27, mid in 7 and distal in 66 with medina classification of 1,1,1 in 49 patients . The most common technique used in was crossover (72%) patients.

In the study no patients reported of any MACEE or adverse outcomes at regular follow up.
Conclusions: In the study of patients with left main artery disease, we found no significant MACEE after stenting with drug eluting stents with respect to the syntax scores and anatomical location of the left main artery stenosis.

Prevalence of coronary artery anomalies at angiography in 10,495 adult patients – A single centre experience

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Background: Coronary artery anomalies are found in 0.2% to 1.3% of patients undergoing coronary angiography and 0.3% of an autopsy series. We aimed to estimate the incidence of coronary artery anomalies in our patient population.
Methods: The data was collected retrospectively by analysing the angiographic data of 10495 consecutive adult patients undergoing coronary angiography between January 2012 and May 2014.The prevalence and the type of anomaly was studied.
Results: Coronary artery anomalies were found in 113 patients (1.07% incidence), 89 patients (78.7%) had origin and distribution anomalies, and 24 patients (21.2%) had coronary artery fistulae. RCA from Left sinus of Valsalva (24.6%); RCA from Posterior sinus of Valsalva (16.7%); Left Circumflex artery from Right sinus of Valsalva (14.9%) were the most common anomaly in the anomalous origin group. In the coronary artery fistula group LAD – PA fistula was the commonest (14.08%) followed by RCA – RA fistula (2.6%)
Conclusion: The incidence and the pattern of coronary artery anomalies in our patient population were almost identical with previous studies. Cardiologists should be aware of the coronary anomalies which may be associated with potentially serious cardiac events, because recognition of these coronary anomalies is mandatory in order to prescribe appropriate therapy. In conclusion, coronary artery anomalies are rarelyidentified during life. Familiarity with coronary artery anomalies may be useful for physicians dealing with diagnosis and treatment of these pathologies.