compared to BA. **Method(s):** Embase, Medline and the Cochrane Central Registry were searched for randomised controlled trials evaluating DCB against BA for arteriovenous fistulas and grafts, central venous stenoses were excluded. The outcome was the need for revascularization due to index lesion restenosis within 6 and 12 months or access thrombosis. A random effects meta-analysis with generic inverse variance weighting was used to generate summary statistics for these outcomes. **Result(s):** 69 abstracts were identified from which seven studies were included for meta-analysis, totaling 707 access stenoses. All studies utilised paclitaxel coated balloons as intervention. At 6 months DCB showed a non-significant trend towards reduced restenosis (RR 0.74, 95% CI: 0.49 to 1.11, $p=0.14$). The 12 month results also showed no significant difference between DCB and BA (RR 0.91, 95% CI: 0.67 to 1.23, $p=0.53$). **Conclusion(s):** Although there was a reasonable amount of heterogeneity, the results presented show that routine use of DCB in hemodialysis access circuits should be reconsidered until further studies show subgroups that may benefit. It is possible that the continued hemodynamic disturbance in the fistula circuit does not allow for the same patency effects of paclitaxel seen in the peripheral arterial circulation.

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Below Knee Angioplasty in Diabetic Patients: Predictors of Major Adverse Clinical Outcomes

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Background: To determine predictors of clinical outcome following percutaneous transluminal angioplasty (PTA) in diabetic patients with below knee atherosclerotic lesions causing critical limb ischemia (CLI). **Method(s):** Over one year, 67 patients (CLI 100%) underwent below knee PTA. The composite end point of interest was major adverse clinical outcomes (MACO) of the treated limb at follow up which was defined as clinical failure, need for subsequent endovascular or surgical revascularization or amputation. Actuarial freedom from MACO was assessed using Kaplan-Meier curves. **Result(s):** Successful limb salvage was seen in 88% with CLI. Complete wound healing was achieved in 76% of cases with a mean time to healing of 10.7 months. Significant predictors of MACO were technical failure (p value 0.002) and occlusive lesions (p value 0.019). We reported a percentage of 76.1% freedom of MACO. **Conclusion(s):** Below knee PTA is a feasible therapeutic option in this diabetic population. Technical failure and occlusive lesions may be predictors of adverse outcome.

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Non-Operative Management of Hepatic Parenchymal and Vascular Injuries: A Departmental Review

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Background: Life threatening conditions like gastrointestinal bleeding is a medical emergency which require an intervention to control the bleeding. Conventionally, surgical method was opt to manage such patients but high mortality and morbidity

rates of 10%-20% convinced the health care workers to switch to some relatively safer and less invasive method to manage hemorrhagic conditions. Advent of non-operative management i.e. arterial embolization for blunt hepatic injuries in around late 20th century emerged as an operative intervention in controlling bleeding. Arterial embolization is becoming a standard first-line treatment option for the management of hemodynamically unstable patients with acute arterial bleeding from all sources. Minimally invasive percutaneous technique offers treatment for arterial lesions that were previously considered inoperable or deemed to require extensive surgical dissection and/or reconstruction, associated with high morbidity and mortality. Mortality increases substantially if emergency surgery is required for aneurysm rupture. Interventional radiology techniques are being used increasingly to treat pseudo aneurysms, and in most centers, they are the first line of treatment. The success of interventional radiology treatment is dependent on high quality cross sectional pre-procedural imaging and adequately trained vascular interventional radiologists. Interventional radiology has proven to be highly suited to this type of condition, thanks to reduced invasiveness, high success rate and lower risk of complications. **Method(s):** A retrospective review of cases of hepatic arterial angioembolization performed in our department during 8-year period was performed. Sixty vascular angiographies were performed in 56 patients (45 males and 11 females, age range 12-66 years) who were referred with hemorrhagic hepatic and vascular emergencies to Aga Khan University hospital's angiography suite from December 2007 to December 2015. Data on clinical indication, technique, site and type of bleeding lesions was obtained from a retrospective review of medical records. Success rate, clinical outcome and complications of the procedure were analyzed. **Result(s):** Fifty six patients underwent angioembolization in our department during this period. Most of them had computerized axial tomographic (CT) scan followed by HA. Active extravasation and pseudoaneurysm formation was seen in most with a few showing arteriovenous malformation, tumoral blush or laceration. **Conclusion(s):** Hepatic arterial angio embolization is a safe, effective and lifesaving therapeutic tool for managing liver parenchymal and related vascular emergencies in hemodynamically stable patients.

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Efficacy of Conventional Venography in Therapeutic Planning of Budd Chiari Patients

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Background: Budd-Chiari syndrome is a heterogeneous group of disorders characterized by hepatic venous outflow obstruction that involves one or more draining hepatic veins or IVC. Clinical manifestations in many cases are nonspecific, and imaging may be critical for early diagnosis of venous obstruction and accurate assessment of the extent of disease. If Budd-Chiari syndrome is not treated promptly and appropriately, the outcome may be dismal. Comprehensive imaging evaluations, in combination with pathologic analyses and clinical testing, are essential for

determining the severity of disease, stratifying risk, selecting the appropriate therapy, and objectively assessing the response. The main goal of treatment is to alleviate hepatic congestion, thereby improving hepatocyte function and allowing resolution of portal hypertension. Various medical, endovascular, and surgical treatment options are available. Percutaneous and endovascular procedures, when performed in properly selected patients, may be more effective than medical treatment methods for preserving liver function and arresting disease progression in the long term. **Objective:** Evaluate efficacy of conventional venography in therapeutic planning and follow up of patients with Budd Chiari. **Method(s):** Sample size: Total of 65 patients were sequentially evaluated and followed up. Inclusion criteria – Patients with chronic liver disease and suspected to have hepatic venous outflow obstruction on MR venography of abdomen or on ultrasound porto-splenic Doppler. Exclusion criteria – Patients with a known liver disease (infective), inflammatory, CLD with good visualization of all 3 hepatic veins and IVC on imaging. Patients were evaluated with suspicious findings of Budd Chiari on colour Doppler and MR venogram. Further regular workup was done with PT/INR and HIV, HBsAg and HCV and posted for conventional venography with jugular puncture. Pigtail catheter run was taken of IVC and catheterization of the hepatic veins/collateral was attempted using 4 Fr head hunter or 4 Fr Cobra. Percutaneous puncture of hepatic vein/large collateral was also done using 22G Chiba needle. **Result(s):** Out of the 65 patients for whom conventional venography was done, 34 patients had evidence of lesions with the intra or infrahepatic portion of IVC causing IVC short or long segment narrowing with collaterals, 46 patients had lesions in left hepatic veins, 35 in middle hepatic vein and 33 in right hepatic vein. Only 70 % correlation could be found between MR venography of abdomen and conventional IVC gram studies. A decision for appropriate therapeutic management on basis of findings on conventional venography was then taken after discussion with gastro-enterology department. Patients were then regularly followed up every month clinically and using USG doppler. **Conclusion(s):** Conventional venography is a better imaging modality than Mr venography and doppler for evaluation and further planning of patients with Budd Chiari syndrome helping in decision making and follow-up.

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Drug Eluting Balloon Angioplasty Versus Bare-Metal Stent in Treating Chronic Total Occlusion of Femoro-Popliteal Arterial Segment; a Review of One-Year Outcome of 90 Patients with TASC C and D Lesion

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Background: Bare metal stent (BMS) scaffolding of superficial femoral artery occlusive lesions has been associated with high rates of late clinical failure. Maintaining the patency of recanalized arterial segments was the main issue behind the concept of leave nothing behind to be evolved and balloon angioplasty becomes preferred option for endovascular therapy. Drug eluting balloons (DEBs) have shown to be effective alternative to BMS for patients with de novo complex superficial femoral occlusive disease. **Purpose:** To compare the outcome of DEB versus BMS in treating

complex chronic total occlusion (CTO) of superficial femoral and proximal popliteal artery in patients with disabling claudication and critical limb ischemia regarding technical success, primary patency, clinically driven target lesion revascularization (cd-TLR), and limb salvage rate. **Method(s):** 90 patients (110 limbs) were complaining of disabling and critical limb ischemia due to complex femoro-popliteal occlusive lesions were randomly allocated into two groups according to the intervention method performed. Group (A); 48 patients (57 limbs) were submitted for treatment with paclitaxel DEB and Group (B); 42 patients (53 limbs) submitted for treatment with BMS. Follow-up period was for 1, 6 and 12. **Result(s):** BMS seems to have lower patency and higher cd-TLR rates compared to patients who received Paclitaxel DCBs but not statistically significant. The primary patency rates were 100%, 96%, 86.2% at 1, 6, 12 months respectively in DEB group, Vs 100%, 89.8%, 77.6% at 1, 6, 12 months respectively in BMS group. TLR rates were 2%, 7.8% at 6, 12 months respectively in DEB group Vs 6.1%, 14.2% at 6, 12 months respectively in BMS group. **Conclusion(s):** Percutaneous therapy for TASC C and D femoro-popliteal lesion using DEB or BMS are both safe and effective with one-year high patency rate. Paclitaxel DEBs seem to have a promising important role in prevention of restenosis and recurrence of peripheral arterial occlusive disease. However, stents are still playing important bailout role in the treatment of residual stenosis and dissection. Further follow-up is essential to obtain and document long-term outcome of percutaneous therapy for complex and long SFA lesions.

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Ultrasound Guided Common Femoral Artery Access: A Meta-Analysis and Systematic Review

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Background: Common femoral artery vascular access is commonplace in all forms of interventional procedures including coronary, peripheral vascular and cerebrovascular. Ultrasound guided arterial access is not the standard of care as in central venous access. Current studies are not conclusive and there remains considerable variation in clinical practice. This meta-analysis aimed to determine the potential benefits of ultrasound guidance in preventing access complications and inefficiencies. **Method(s):** Embase, Medline and the Cochrane Central Registry were searched for randomised controlled trials evaluating ultrasound guided versus palpation or fluoroscopy assisted common femoral access for any interventional procedures. A random effects meta-analysis was used to evaluate haematoma or pseudoaneurysm formation as well as number of attempts required for access. **Result(s):** 228 abstracts were identified from which six studies were included for meta-analysis, totaling 2492 participants. Ultrasound use was associated with a significant reduction in haematomas and pseudoaneurysms (RR 0.42, 95% CI: 0.24 to 0.72, $p < 0.002$) as well as puncture attempts with 0.63 less needle passes required on average (95% CI: -1.18 to -0.08, $p = 0.03$). **Conclusion(s):** The routine use of ultrasound guided common femoral artery access significantly reduces bleeding complications and the number of attempts required for successful access. This should be recommended as a standard procedure. Routine use would likely overcome the learning curve to facilitate uncomplicated access in more difficult cases.