Introductio

Acute limb ischemia (ALI) is a vascular emergency that carries high risk of mortality and limb amputation. The incidence is about 1.5 cases per 10,000 persons per year. Thrombotic occlusion is the most common variety of acute limb ischemia. It occurs in any segment of the lower limb but most commonly affects the superficial femoral artery.

Systemic administration of thrombolytic agents to treat ALI carries a significant morbidity and mortality with poor clinical results so it is not recommended, while current methods include CDT and pharmacomechanical thrombolysis are recommended. CDT provides thrombolysis of the thrombosed portion and unmask the hidden underlying lesion that can be treated either by endovascular techniques or surgically. Successful management requires proper patient selection and wise clinical assessment.

Procedure Details

- Pre-intervention angiography was performed to assess the location of the thrombus and distal run-off prior to intervention (Figure 1, 2, 3). A 0.035 hydrophilic guide wire was traversed and advanced through the site of thrombosed segment. The multi-holes 5F thrombolysis catheter was advanced and its infusion length was positioned through the proximal end of occlusion (Figure 4).
- Its tip occlusion wire was positioned under fluoroscopy. The thrombolytic agent, Actilyse™ was prepared to a concentration of 1 mg/mL. The method of infusion used was intra-thrombus bolus administration firstly of a mean dose of 5-10 ml TPA followed by continuous infusion of 1 mg/h. 500 IU/hr UFH was infused through the sheath to guard against peri-catheter thrombosis. Patients were monitored thoroughly in ICU or intermediate care unit especially to the ischemic manifestations of the limb, coagulation profile to avoid bleeding complications.
- Follow up angiography was conducted according to the clinical course. The 1st follow up angiography was conducted usually after 12 hours and then according to clinical course. The value was to detect the progress of thrombolysis, restoration of flow and for catheter repositioning (Figure 5, 6). Any underlying lesion detected was managed by balloon angioplasty.
- Study Endpoints: Thrombolysis was terminated if there was angiographic restoration of distal flow or appearance of distal pulses, no progress of thrombolysis procedure confirmed by two successive follow up angiographies or occurrence of major complication (major bleeding or deterioration of limb ischemia).

Materials And Methods

A prospective study carried out from August 2015 to March 2017 on 18 patients (13 males, 5 females) with a mean age of 49 years suffered from acute thrombotic lower limb ischemia (Rutherford II-a).
- Prior to thrombolysis, full clinical assessment was carried out with special concern to manifestation of acute ischemia and its grade. Duplex ultrasound and CT angiography was performed to all cases.

Results

Major risk factors were DM (66%) and smoking (56%). The common site of thrombosis was SFA artery. Technical success was achieved in 15 patients (83%). Complementary revascularization was performed in 5/15 patients (33.3 %) by balloon angioplasty to the underlying lesion. Limb salvage rate at 6 months follow up was (77.7%). Failure of thrombolysis occurred in 3 limbs (16.6%). All failed procedures were in patients with thrombosed distal femoro-popliteal segment. Inability to traverse the guidewire was a prognostic criterion of failure. Bleeding (local groin hematoma or minimal retroperitoneal) occurred in 3 patients (16.6 %) and were treated conservatively. No major bleeding was recorded. Amputation had performed in two patients (11%) while mortality rate within 6 months was 16.6 % (3 patients).

Conclusions

With proper patient selection, CDT should be considered the first-line treatment for patients with early acute thrombotic limb ischemia.