Objective: To improve the surgical treatment of patients with multilevel lesions of arteries of lower extremities.

Introduction: Optimum results may be achieved with both inflow and outflow arterial reconstruction. Simultaneous hybrid endovascular and open lower extremity arterial reconstructive procedures have the advantages of obviating the need for major surgery and avoiding separate staged interventions and their associated morbidity.

Material and Methods: From March 2013 to June 2016 38 patients with multilevel lower extremity arterial occlusive disease underwent hybrid procedure. The mean age was 66 years (range: 39–82) Most patients were male (21 males, 55%). According to the Fontaine grading, 16 patients (43%) were treated for severe intermittent claudication, 16 patients (39%) had persistent rest pain and 5 patients (24%) had minor tissue loss. And 1 patient with acute ischemia. Iliac lesions were defined according to the TASC II Type A 5 patients type B 3 patients type D 12 patients.

Risk factors for atherosclerosis and associated diseases. The most commonly associated cardiovascular risk factors were hypertension (100%), smoking (59%), dyslipidaemia (73.6%), coronary artery disease (76.3%), Smoking 68.4 % and diabetes (31%). Totally 40 hybrid interventions were performed (2 patients underwent procedures on both extremities).

Technique: The most common open procedure was endarterectomy of the External iliac artery. SFA remote endarterectomy followed by PTA of BTK vessels 12 cases, Iliac stenting with SFA endarterectomy in 8 cases Iliac stenting Femoro-popliteal bypass 8.

All patients underwent a postoperative surveillance programme, which consisted of clinical examination, ABI duplex ultrasonography at 1, 3 and 6 months and at 6-month intervals thereafter. Patients with worsening clinical symptoms, physical examinations and/or non-invasive studies were further assessed with digital subtraction angiography or computer-assisted arteriography. The decision on the type of re-intervention was made by the treating surgeon.

Results:

Technical success was achieved in all patients (100%). Mean ABPI increase was 0.40. Mean length of hospital stay (6.1 days). The median follow-up period was 10.5 months (range, 1–18 months); Primary patency rates at 12 months 86.7%. Limb salvage rates 95%.

Conclusions: Hybrid procedures provide an effective treatment of multilevel lower extremity atherosclerotic arterial disease. Our data suggest that the immediate results, expressed as technical and haemodynamic success and the mid-term outcomes, represented by the patency and limb-salvage rates, are satisfactory.

Hybrid procedures for the treatment of severe lower extremity arterial disease may provide less invasive therapeutic options tailored to the needs of high risk patients.