Introduction and Purpose

Revascularization of the below-the-knee-arteries is a promising therapeutic option for patients with lower leg peripheral artery disease (PAD) in stages III and IV according to the Fontaine classification. This study is aimed at determining the clinical success (healing, limb salvage, re-intervention rate and procedural complications) and the feasibility of below-the-knee-revascularization (BTKR) in cases with critical limb ischemia (CLI).

Material and Methods

Number of Patients: 196 Patients (male n=116 und female n=80), 220 limbs, 308 revascularisation procedures.
Fontaine classification: stage III (n=21), stage IV (n= 175).
Median age at the time of the intervention: 74 years (range 34 to 95 years).
Risk factors: hypertension (n = 133), diabetes mellitus (n = 145), renal insufficiency (n = 79), dialysis (n = 35), hyperlipidemia (n = 64), nicotine abuse (n = 45).
Follow up period: 12-72 months.

Material and Methods

Number of revascularized vessels in a single sitting per patient: Only one of the three lower leg vessels (54.87%), 2 vessels (33.44%), 3 vessels (2.92%). In 8.76% of the interventions none of the lower leg vessel could be revascularized.
Frequency of the inflow revascularization (femoral artery with or without popliteal artery): n = 177.
Stent implantation: n = 13 lower leg vessels (6 tibiofibular artery, 5 anterior tibial artery, 2 x fibular artery).
Selective intra-arterial thrombolysis: n = 27 recanalization procedures (In 7 cases, the occluded artery was restored by only selective intra-arterial thrombolysis).

Technique of the PTA

a) Recanalization of the stenosed and partially occluded tibiofibular Trunk and anterior fibular artery. b) Documentation of the intraluminal catheter position distal to occlusion. c) Ballon dilatation of the diseased part of the artery. Postinterventional result after Dilatation of the diseased part of the artery with good antegrade perfusion.

Results

The technical success rate in the 308 Recanalization procedures was 91.23%.
The procedural complication rate at primary intervention was 4.87%, no complication was life-threatening.
The re-intervention rate was 21.93%; 20.91% re-BTKR and 1.02% bypass operation.
The amputation rate was 22.44%, of which 3.57% major amputations.
The 30-day mortality rate was 2.5%.

Conclusions and discussion

The results of our study demonstrate the importance of below-the-knee-revascularization in critical limb ischemia and justify its use as the first method of choice.
The BTK-Revascularization results in a high limb salvage rate. The complication rate is low and the re-intervention rate is acceptable.
Our results compare with others reported in literature.1-3