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Predictors and clinical impact of repeat intervention for infra-popliteal lesion of patients with critical limb ischemia

Background Though its patency rates are relatively low, endovascular therapy (EVT) has become a first line approach of revascularization in patients with critical limb ischemia (CLI). EVT for infra-popliteal lesion has high rate of restenosis and requirement for repeat intervention, however predictors and its clinical impact were not well characterized. The aim of this study was to assess the predictors of requirement for repeat intervention and its clinical impact after infra-popliteal EVT for patients with CLI. Methods We retrospectively analyzed a multicenter database from April 2004 to December 2012. The independent predictors of requirement for repeat intervention were analyzed. Freedom from major adverse limb event (MALE; major amputation or bypass surgery) and time to wound healing in the ischemic wound group were compared between single intervention group and multiple intervention group. Results A total of 1332 limbs in 1093 patients were treated for CLI (Rutherford 5 or 6: 76.6%). A multiple intervention was performed in 482 limbs 389 patients. Independent predictors of requirement for repeat intervention were dialysis, lesion length >300mm, residual stenosis >50%, poor below the ankle lesion runoff, and low ABI. The Rate of freedom from MALE of single intervention group was significantly higher than multiple intervention group. Conclusions In the patients with CLI due to infra-popliteal lesions, the rate of requirement for repeat intervention was high after treatment with plain balloon angioplasty. Patients with dialysis, long calcified lesion and poor runoff were independent predictors for repeat intervention and it may adversely impact of clinical outcomes.