ABSTRACT

Native artery recanalization in patients with Critical Limb Ischemia followed bypass failure

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Introduction: At our department, limb-salvage angioplasty has been introduced as an alternative-last chance method with the primary goal of achieving limb salvage in selected poor surgical candidates with end-stage arterial occlusive disease and with bypass failure. The purpose of this study was to evaluate the treatment outcomes after limb-salvage PTA/S for poor surgical candidate patients with CLI following occluded bypass and who otherwise would be candidates for primary amputation.

Objective: To prove the possibility of native artery recanalization in patients with critical limb ischemia followed bypass graft failure and to evaluate the outcomes of endovascular treatment for limb salvage in those critical limb ischemic patients who are otherwise would be candidates for major amputation.

Materials and methods: This study was a single centre experienced, retrospective clinical analysis of 29 consecutive high surgical risk patients with CLI treated with PTA/Stent following the failure of open surgery bypass grafts reconstruction. All patients had occlusion of previous bypass graft and were considered poor candidates for a new bypass operation. Preprocedural and postprocedural ankle-brachial index (ABI), TcPO2 and TcPCO2 were used to evaluate hemodynamic and tissue perfusion improvement. All patients were studied with a color-Doppler-US, MR angiography, MsCT angiography as a diagnostic pre-procedure to define the location of lesions and to plan the revascularization strategy. Ulcers on the lower limb were photographically recorded with a digital camera for core laboratory assessment. Post procedure follow-up was scheduled 1, 3, 6 months and yearly thereafter. The data's were analyzed with the Student t test; significant difference was assumed for $p<0.05$.

Results: The technical success was achieved in 28 (93.3%) of 30 limbs. In these 28 limbs subintimal technique was incorporated in 92.8 % of cases. Mean lesion length was 12.3 ± 6.3 cm (4.8–29). In 7 (23.3%) limbs were positioned stent. The preprocedural level of TcPO2 was 13.8 ± 6 mmHg; in patients with technical success this parameter was increased after first week up-to 26.83 ± 13 mmHg. ($p<0.05$) Preprocedural mean of TcPCO2 in extremely ischemic foot was 71.2 ± 27 mmHg, but postprocedural mean, after first week, was decresed significantly and was continuing to decrease in subsequently. ($p<0.001$) The ABI improved to 0.86 ± 0.18 ($p<0.001$ versus pretreatment) and TCO2 improvement was obtained to 52.4 ± 0.22 ($p<0.001$). The mean area reduction of ulcers or minor amputation sites was 72% for 23 wounds observed at 3 months, increasing to 93% at 6 months. In the 28 successfully treated patients, the limb salvage rate at 6 months was at least 92.8 %.

Conclusion: Native artery limb-salvage angioplasty can be successfully achieved in amputation candidate, high surgical risk patients with critical limb ischemia followed bypass failure. The outcomes of our study shows that the endovascular recanalization (PTA) technique in these high risk group patients is optimal alternative method of treatment with optimal technical success, with low morbidity and mortality, feasible even in multiple, long and high calcify steno-occlusions of limb arteries, which allows immediate clinical results and good limb salvage rate in short term follow-up.