Objective

Technical progress in angioplasty expanded its application to very distal arterial lesions of the lower extremity. In cases of unsuccessful angioplasty, tibiodistal bypass surgery may be required for limb salvage. We investigated the long-term outcome of this technique in patients with critical limb ischemia. The purpose of this study was to evaluate whether tibiodistal bypasses done after unsuccessful tibial angioplasty had inferior patency, limb salvage, or survival rates compared with primary tibiodistal bypasses.

Methods

This single-center, retrospective data analysis included all distal bypass procedures originating from a tibial artery. Primary study end points were primary patency, secondary patency, and limb salvage. Secondary end points included survival, wound healing, and systemic and local complications. Society for Vascular Surgery reporting standards were applied.

Results

There were 61 tibiodistal vein bypasses for critical limb ischemia performed in 23 years. Indications for tibiodistal bypass was Rutherford category 5 in 41 cases (67%) and category 6 in 20 cases (33%). Procedures were allocated to group A (primary bypass; n = 28) and group B (bypass after unsuccessful tibial angioplasty; n = 33).

Primary patency was 55% versus 53% at 1 year and 47% versus 44% at 3 years (P = .58). Secondary patency was 59% versus 64% at 1 year and 52% versus 55% at 3 years (P = .36). Limb salvage was 96% versus 90% at 1 year and 91% versus 85% at 3 years (P = .44). Overall survival rates were 91% versus 97% at 1 year and 85% versus 92% at 3 years (P = .76). The median follow-up was 4.0 years in group A and 4.9 years in group B. In multivariate analyses for loss of primary patency and limb loss, no significant predictors could be identified.

Conclusion

This study showed that tibiodistal vein bypass is a feasible, efficient, and safe technique in patients with critical limb ischemia. It provides acceptable primary and secondary patency rates to prevent major amputation and ensure survival. Previous unsuccessful tibial angioplasty had no significant impact on tibiodistal vein bypass outcome. This technique should be part of the armamentarium of vascular surgeons.