Objective(s): Lower extremity amputations (LEAs) are among the most common procedures performed by vascular surgeons in patients with diabetes and peripheral vascular disease. This population commonly suffers from re-admission, wound complication, and conversion to more proximal amputation. These events impact quality in terms of cost, resources, and subjective quality of life. Despite this, not much evidence exists to objectively guide outcome-oriented surgical decision-making. The aim of this study was to compare outcomes between primary LEA (pLEA) and staged guillotine amputation followed by interval formalization (sLEA) for infected diabetic foot disease.

Methods: A retrospective chart review of LEAs performed by vascular surgeons at a single institution between January 2014 and March 2017 was performed. Inclusion criteria were diabetic patients with foot gangrene. Amputations for trauma, acute limb ischemia, or malignancy were excluded. Per institutional practice, sLEA had been performed for uncontrolled infection, and pLEA had been performed for controlled infection. The primary outcome measure was 30-day freedom from conversion to a higher-level amputation. Secondary outcome measures were stump complications, 30-day re-admissions, 30-day major adverse cardiovascular events (MACE), and 30-day mortality.

Results: 116 patients met inclusion criteria. Mean age was 58 years; 68% were male; 18% were active smokers; 30% had end-stage renal disease; and 22% had congestive heart failure. 62 limbs underwent sLEA, and 67 limbs underwent pLEA. The two cohorts were well-matched by demographics and comorbidities. Consistent with the above-mentioned institutional practice, 57% of sLEA patients met 2 or more SIRS criteria at presentation compared to 24% of pLEA patients (p=0.0003). There were no 30-day mortalities. sLEA patients had a lower rate of 30-day re-admission (6% versus 20%, p=0.05) 30-day unplanned conversion to higher level amputation (2% versus 13%, p=0.029).

Conclusions: In the setting of end stage diabetic foot disease, a staged amputation achieves quality outcomes superior to a one-stage amputation (despite a selection bias favoring the primary group patients) and should be considered in all diabetic patients presenting with unsalvageable foot wounds. Further subgroup analyses will attempt to identify additional high-risk patient characteristics that portend adverse outcomes which may further inform the surgical decision-making process.

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