with surgical bypass, with shorter hospitalizations in symptomatic and asymptomatic patients. Further long-term follow-up is required to compare these two treatment modalities for durability to determine the optimal popliteal aneurysm management.

Multifactorial Disease Severity Score (DSS) Predicting the Success of Endovascular Intervention of Femoropopliteal Peripheral Arterial Disease

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Objective(s): The goal was to create a multifactorial Disease Severity Score (DSS) for characterization of femoropopliteal arterial lesions. By having a greater understanding of the effect of patient comorbidities and an in-depth method to characterize an arterial lesion, we may be able to better compare lesions in different studies and predict which therapy is most appropriate for each lesion undergoing an endovascular intervention (EVI).

Methods: We evaluated 44 lesion and patient characteristics in our prospectively maintained lower extremity arterial lesion database from 2005 to 2009 to create a gradated DSS.

Results: We identified 1329 femoropopliteal lesions in 675 patients. Statistical analysis by multivariable Cox proportional hazards model identified 16 variables that impact patency: seven lesion characteristics (Table I) and nine patient characteristics or comorbidities (Table II). Factors with the most impact were a chronic total occlusion (DSS 16), lesion length >100 mm (DSS 13), and no runoff vessels and stenosis of 80% to 99% (DSS 9). The following factors were considered baseline, or score of 0: stenosis <80%, lesion length <100 mm, and three-vessel runoff. By adding these variable scores, a DSS was created and used to predict patency of the EVI.

Conclusions: The presence of a chronic total occlusion, lesion length >100 mm, poor runoff, and the presence of congestive heart failure have the most dramatic effect on patency after EVI. A comprehensive DSS allows for the in-depth classification of lesion characteristics and factors that predict success of EVI and can allow for comparison of distinct lesions. Future comparisons of effectiveness of treatment modalities can be possible.

Table I. Significant femoropopliteal lesion characteristics that negatively impact patency after endovascular intervention

Factor	*Score*	*HR (95% CI)*
Chronic total occlusion	16	1.73 (1.28-2.33)
Stenosis 80%-90%	9	1.38 (1.06-1.78
Lesion length ≥100 mm	13	1.55 (1.25-1.93)
Vessel runoff		
0	9	1.36 (0.95-1.96)
1	7	1.29 (0.96-1.73)
2	1	1.04 (0.77-1.40)
Lesion calcification	1	1.04 (0.82-1.31)

CI, Confidence interval; *HR,* hazard ratio.

Table II. Patient characteristics that impact patency after endovascular intervention

Factor (N = 16)	*Score*	*Cox coefficient*	*HR (95% CI)*
CHF	8	0.274	1.32 (0.99-1.74)
Female sex	7	0.227	1.25 (0.96-1.63)
Current smoker	7	0.234	1.26 (0.80-1.99)
Former smoker	3	0.121	1.13 (0.85-1.50)
Diabetes	6	0.199	1.22 (0.94-1.58)
CAD	4	0.147	1.16 (0.88-1.53)
Renal	4	0.140	1.15 (0.85-1.55)
Age, years			
50-64	6	0.195	1.22 (0.84-1.76)
65-79	−2	−0.075	0.93 (0.69-1.25)

CAD, Coronary artery disease; *CHF*, congestive heart failure; *CI*, confidence interval; HR, hazard ratio.

Defining the Role of Endovascular Therapy in Critical Limb Ischemia With Tissue Loss

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Objective(s): We compare the utility of endovascular therapy (ET) with bypass surgery for critical limb ischemia (CLI) with tissue loss and identify risk factors for failure of ET.

Table.

	Hazard ratio (HR/ AOR)	*95% CI for HR/ AOR*	P *value*
Overall survival			
Dialysis dependence	3.0	1.1–81.	.03
Angina	5.1	1.3–20.3	.02
COPD	3.8	1.8–8.3	.001
Amputation free survival			
Rutherford 6	3.6	1.4–9.2	.007
COPD	3.6	1.3–9.6	.01
Limb salvage			
Rutherford 6	35.1	5.4–231	<.0001
Wound healing at 12 months			
Diabetes	7.0	1.4–36	.02
Current smoking	5.3	1.1–26	.04
Patency loss	4.8	1.1–22	.04

Methods: A retrospective review (2004 to 2010) of patients undergoing ET for tissue loss (Rutherford class 5 and 6) provided data for multivariate models of overall survival, amputation-free survival (AFS), limb salvage, and wound healing. Comparisons were made with a bypass surgery cohort matched for tissue loss.

Results: Ninety-four patients underwent ET (58% TransAtlantic InterSociety Concensus [TASC] C/D; 44% tibial) for Rutherford 5 (88%) or Rutherford 6 (12%) CLI with tissue loss of the heel (15%), forefoot (16%), toe(s) (43%), calf/ankle (11%), or multiple locations (15%). Sustained limb salvage was 83% ± 5%. Overall survival was 44% ± 7% and AFS was 40% ± 7% at 2 years. Predictors of failure by multivariate models are reported in the Table. Comparison between the Rutherford 5 WRsubgroup (n = 83) and an Rutherford 5 bypass cohort (n = 66), suggest equivalent limb salvage, with reduced AFS ($P = .04$) and a trend toward reduced overall survival ($P = .09$). Early would healing was higher after bypass: 43% vs 11% at 3 months ($P = .001$) and 57% vs 30% at 6 months ($P = .01$).

Conclusions: Given the short life expectancy of patients with tissue loss, ET permits sustained limb salvage in patients at high risk for bypass (particularly Rutherford 5). However, wound healing is slow compared with bypass and requires sustained patency.

Midterm Results of Limb Salvage and Stent Patency with Popliteal Artery Stenting Across the Knee Joint

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Objective(s): This study evaluated the relationship of stent location on limb salvage and stent patency in patients undergoing popliteal artery stenting.

Methods: We performed a retrospective review of a prospectively collected database, identifying all patients undergoing popliteal artery stenting between September 2009 and February 2012. Patients were divided into two groups based on the position of the distal end of the stent in relation to the knee joint. The proximal popliteal stent group included patients receiving a stent ending above the patella (above the flexion point of the knee). The distal popliteal stent group included patients receiving a stent(s) ending below the patella (in the flexion zone). Data collected included demographics, indication for surgery,