



Author Disclosures: A. Schanzer, None; P.P. Goodney, None; Y. Li, None; M. Eslami, None; J. Cronenwett, None; L. Messina, None; M.S. Conte, None.

SS4.

Open Common Femoral Artery Endarterectomy for Lower Extremity Ischemia: Predicting the Need for Distal Limb Revascularization

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Objective: To evaluate the outcomes of open common femoral endarterectomy (OCFE) and define predictive factors for additional distal revascularization.

Methods: We reviewed 230 consecutive patients treated with OCFE (262 limbs) for lower extremity ischemia between 1997 and 2008. Patients were divided into two groups: OCFE alone (Group A, 169 limbs), or OCFE + distal revascularization (Group B, 93 limbs). Iliac disease in both groups was treated by endovascular approach. End-points were mortality, patency, re-intervention and limb salvage.

Results: Demographics, clinical severity scores, TASC II classification, and number of iliac interventions were similar in both groups, but Group B patients had more ($p < .001$) critical limb ischemia (Rutherford Category [RC] 5 ± 1.4 vs 3 ± 1.2) and diabetes (52% vs 33%). Technical success was obtained in all patients. In patients with RC 1-4 and RC 5 with TASC A-C lesions, clinical improvement (99% vs 100%) and limb salvage (99% and 100%) were similar for both groups, but Group B patients had higher re-intervention rates (14% vs 3%; $p = 0.01$). For patients with more advanced disease (RC 5 with TASC D lesions or RC 6 regardless of TASC) distal revascularization (Group B) was associated with fewer ($p < .001$) re-interventions (24% vs 46%) and major amputations (5% vs 29%). Overall 1- and 5-year primary patency rates for OCFE were 97% and 94%, with 100% secondary patency at both time points. Overall survival was 93% at 1 year and 77% at 5 years. There was no difference in survival between the two groups for RC 1-5 ($p = 0.2$), but for patients with RC 6, survival was improved in Group B (67% vs 39%; $p = .09$). Independent predictors for distal revascularization are listed in Table 1.

Conclusion: OCFE alone is sufficient for patients who present with claudication or rest pain regardless of TASC lesion and with RC 5 and TASC lesions A-C. Distal revascularization should be considered in diabetics, and in patients with RC 5 and TASC D lesions and those with major tissue loss (RC 6) regardless of the extent of distal disease.

Table 1. Independent predictors for distal revascularization

	Odds ratio/95% CI amputation reintervention	
Rutherford 5/TASC D	2.6 (0.8-8.8)	5.9 (2.1-16.8)*
Rutherford 6	8.6 (2.44-30.6)*	8.9 (2.1-37.3)*
Diabetes Mellitus	4.3 (1.1-16)*	4.1 (1.4-12.1)*
Chronic Renal Failure	2.1 (0.7-2.8)*	2.9 (1.1-7.8)*
Anticoagulation (warfarin)	0.5 (0.06-4.1)	5.3 (1.7-16.1)*

*Insulin Regimen is an independent predictor for distal revasc. (OR=2.3 1.1-11; $p = .02$).

§Increased Risk of Amputation for patients on dialysis (OR=5.9 1.4-25 $p = .001$).

* $p < .05$.

Author Disclosures: R.D. Malgor, None; J.J. Ricotta, None; G.S. Oderich, None; M. Kalra, None; T.C. Bower, None; A.A. Duncan, None; P. Gloviczki, None.

SS5.

Soluble Inflammatory and Cellular Adhesion Molecules Predict Mortality, Cardiovascular events (MACE), and Amputation-Free Survival (AFS) in Patients Undergoing Lower Extremity Vein Bypass Surgery

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Objective: The long term benefits of lower extremity revascularization (LER) are limited by cardiovascular complications. This study was designed to test the hypothesis that baseline measures of systemic inflammation are predictive of postoperative outcomes following open surgical LER.

Methods: Prospective, three-center, cohort study of subjects (N=225) undergoing LER using autogenous vein bypass. Exclusion criteria included the presence of major infection or systemic illness. Baseline biomarkers (including high-sensitivity C-reactive protein (hsCRP), vascular cellular adhesion molecule (VCAM), and interleukin 6 (IL-6)) were obtained prior to surgery in the fasting state. The main outcomes were mortality, AFS, MACE, and graft patency. Correlation (Spearman) and Cox proportional hazard analyses were performed.

Results: The median follow up time was 29 ± 14.6 months. Indication for bypass was critical ischemia (CLI) in 129 cases (57%). The median hs-CRP, VCAM, and IL-6 levels for the entire cohort were 2.98 mg/L, 706.4 ng/ml, and 4.7 pg/mL; these three biomarkers were significantly correlated with each other (r values 0.39-0.66, $p < 0.05$) and with the presence of CLI ($p < 0.05$). All biomarkers evaluated by tertile or upper limit of reference range. After adjustment for age, diabetes, end-stage renal disease and tissue loss, all three inflammatory biomarkers were significantly associated with survival and AFS, particularly in the CLI cohort (Table). Biomarkers were also independently predictive of MACE. Baseline hsCRP had a strong univariate association with graft patency ($p = .010$), however this relationship was attenuated after adjustment for CLI, type of venous conduit, and outflow level.

Conclusion: Baseline measures of systemic inflammation and cellular adhesion were independently predictive of mortality, cardiovascular events and limb-related outcomes following surgical LER. The efficacy of treatments that reduce inflammation should be explored in future investigations.

Adjusted hazard ratios (95% CI) for study outcomes

	Overall cohort (N=225)	CLI (N=129)
Survival		
Endpoints N (%)	47 (21.1%)	37 (28.9%)
*CRP (HR, CI)	2.77 (1.41-5.46)	3.81 (1.63-8.93)
VCAM	1.53 (.95-2.47)	2.33 (1.24-4.38)
IL-6	1.78 (1.11-2.85)	2.83 (1.46-5.49)
MACE		
Endpoints N(%)	43 (19.3%)	31 (24.2%)
*CRP (HR, CI)	2.30 (1.15-4.59)	2.10 (.95-4.6)
VCAM	1.45 (.90-2.33)	1.86 (1.02-3.38)
IL6	1.28 (.81-2.01)	1.69 (.96-2.99)
AFS		
Endpoints N(%)	56 (21.1%)	45 (35.2%)
*CRP (HR, CI)	2.38 (1.31-4.32)	2.97 (1.46-6.02)
VCAM	1.51 (.99-2.32)	2.04 (1.19-3.47)
IL6	1.76 (1.16-2.67)	1.72 (1.10-2.71)
Primary patency		
Endpoints N(%)	73 (32.7%)	48 (37.5%)
*CRP (HR, CI)	1.44 (.87-2.40)	1.15 (.63-2.11)
VCAM	.90 (.65-1.24)	.85 (.57-1.25)
IL6	1.08 (.80-1.47)	1.23 (.85-1.78)

*Dichotomized by upper limit of reference range (5 mg/L).