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Socioeconomic Disparities Do Not Affect Outcomes in Acute Limb Ischemia

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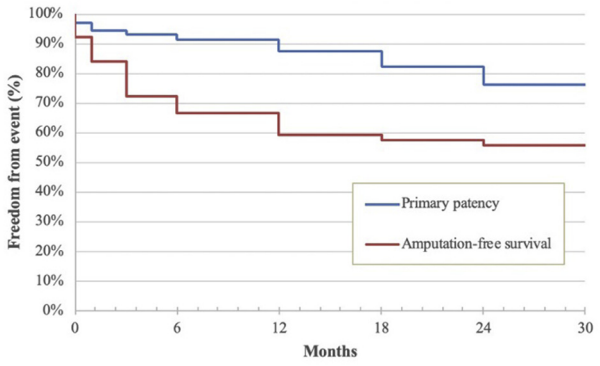
95% confidence interval 1.42-6.17; $P = .004$) and WIfI stage 4 at presentation (hazard ratio, 2.23; 95% confidence interval, 1.10-4.52; $P = .026$). The WIfI stage at presentation was similar between the different race groups ($P = .26$).

Conclusions: Despite advances in percutaneous peripheral intervention, CLTI remains a morbid and deadly disease. Even in the endovascular era, nearly one half of all patients presenting with CLTI will lose their limb and/or life within the first year. Although endovascular intervention can reliably restore patency to affected arteries, this appears insufficient to restore most patients to health.



Number at risk/Time (months)	0	6	12	18	24
Primary patency	74	60	53	39	30
Amputation-free survival	137	78	67	50	34

Fig. Cumulative primary patency (n = 74) and amputation-free survival (AFS; n = 137) after endovascular revascularization for chronic limb-threatening ischemia (CLTI).

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Socioeconomic Disparities Do Not Affect Outcomes in Acute Limb Ischemia

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Objective: The association between socioeconomic status (SES) and outcome after acute limb ischemia (ALI) is largely unknown. We aimed to determine whether SES is associated with worse presentations and outcomes for patients with ALI.

Methods: We performed a retrospective review of a prospectively collected database containing all patients who had presented with ALI between April 2016 and October 2020 to a tertiary care center. SES was quantified using individual variables (median household income, level of education, employment) and a composite endpoint, the neighborhood deprivation index (NDI). The NDI is a standardized and reproducible index that uses census tract data, with a higher number indicating lower SES status. The NDI summarizes eight domains of socioeconomic deprivation. ALI severity was categorized using the Rutherford classification. The associations between SES and the severity of ALI at presentation and between SES and the outcomes were analyzed using bivariate analysis of variance, an independent *t* test, and multivariate logistic regression, as appropriate.

Results: During the study period, 278 patients were treated for ALI, of whom 211 had complete SES data available. Their mean age was 64 years; 55% were men and 57% were white. The Rutherford classification of disease severity was grade 1, 2a, 2b, and 3 for 6%, 54%, 32%, and 8%, respectively. Patients with a low SES status using the NDI were more likely to have a history of peripheral arterial disease and chronic kidney disease at presentation (Table). The etiology (thrombotic vs embolic) was not associated with SES. No significant differences were seen between SES and the severity of ALI at presentation ($P = .96$) or the treatment modality ($P = .80$). We found no association between SES and either 30-day or 1-year limb loss or mortality (Table). Lower SES (higher NDI) was associated with increased 30-day readmissions ($P = .021$). This association persisted on multivariate analysis ($P = .023$).

Conclusions: SES was not associated with the severity of ALI at presentation. Although SES was associated with the presence of peripheral arterial disease and chronic kidney disease at presentation and higher readmission rates for patients with ALI, SES was not a predictor of short-term or 1-year limb loss or mortality. In the present study, ALI presentation and treatment outcome were independent of SES.

Table. Difference in mean NDI stratified by comorbidity, disease severity at presentation, and outcome

Variable	NDI	*P* value
Baseline characteristic		
Diabetes		.19
No	0.19 ± 0.91	
Yes	0.36 ± 1.00	
HTN		.06
No	0.033 ± 0.92	
Yes	0.32 ± 0.95	
CAD		.36
No	0.21 ± 0.91	
Yes	0.33 ± 1.00	
PAD		.01
No	0.074 ± 0.85	
Yes	0.39 ± 0.99	
HLD		.06
No	0.36 ± 1.01	
Yes	0.14 ± 0.86	
CHF		.40
No	0.22 ± 0.96	
Yes	0.34 ± 0.91	
CKD		.04
No	0.17 ± 0.91	
Yes	0.49 ± 1.01	
Cancer		.70
No	0.27 ± 0.94	
Yes	0.19 ± 1.03	
Smoker		.72
Never	0.17 ± 0.93	
Previous	0.31 ± 0.99	
Current	0.22 ± 0.91	
Rutherford class		.96
1	0.37 ± 0.75	
2a	0.23 ± 0.96	
2b	0.27 ± 0.99	
3	0.30 ± 0.94	
Etiology		.43
Embolic	0.32 ± 0.98	
Thrombotic	0.19 ± 0.95	
Intervention		.80
Endovascular	0.23 ± 0.78	

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Table. Continued.

Variable	NDI	*P* value
Open	0.19 ± 0.91	
Primary amputation	0.31 ± 1.01	
Medical treatment	0.42 ± 0.93	
Outcome		
30-Day readmission		.02
No	0.15 ± 0.90	
Yes	0.49 ± 1.06	
30-Day limb loss		.18
No	0.30 ± 0.96	
Yes	0.06 ± 0.97	
1-Year limb loss		.17
No	0.32 ± 0.98	
Yes	0.10 ± 0.97	
30-Day mortality		.58
No	0.26 ± 0.96	
Yes	0.15 ± 0.88	
1-Year mortality		.71
No	0.26 ± 0.96	
Yes	0.20 ± 0.94	

CAD, Coronary artery disease; *CHF,* congestive heart failure; *CKD,* chronic kidney disease; *HLD,* hyperlipidemia; *HTN,* hypertension; *NDI,* neighborhood deprivation index.
Data presented as mean ± standard deviation.

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Open Surgical Revascularization for Aortoiliac Occlusive Disease Across Surgical Eras and Surgeon Experience

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Objective: We compared the contemporary outcomes of open surgical revascularization (OSR) for aortoiliac occlusive disease with a historical cohort (HC) and between surgeons with varying experience (junior, <5 years of practice; senior, >5 years of practice).

Methods: We performed a retrospective medical record review of consecutive patients with aortoiliac occlusive disease who had undergone OSR during a 20-year period (1999-2018). The patients were divided into a HC (1999-2008) and a contemporary cohort (CC; 2009-2018). The primary surgeons were divided into junior and senior surgeons. The log-rank test was used to compare the primary patency and survival. Continuous variables were compared using the Student *t* test and categorical variables using a χ^2 test.

Results: A total of 245 patients were included (153 in the HC and 92 in the CC. Most patients were men (59.6%), with a higher prevalence of major cardiovascular risk factors in the HC compared with the CC (Table). The patients in the CC were more likely to have had prior endovascular aortoiliac intervention compared with the HC (31.5% vs 16.3%; $P < .01$). The most common presentation was lifestyle limiting claudication. The patients in the CC had had longer clamp and operative times and were more likely to require a suprarenal clamp and aortic or femoral endarterectomy. The median follow-up was 91 months for the HC and 52 months for the CC. No differences were found in the 30-day mortality, length of hospitalization, readmission rates, or 5-year primary patency. Of the 245 procedures, 194 were performed by senior surgeons and 51 by junior surgeons. OSR by senior surgeons was more likely to require a suprarenal clamp (43.3% vs 33.3%; $P = .3$) and concomitant endarterectomy (82.5% vs 70.6%; $P = .05$). The differences in the length of hospitalization (10 vs 9 days; $P = .55$), 30-day mortality (0.5% vs 2%; $P = .31$), and readmission rates (14% vs 10%; $P = .32$) between the senior and junior surgeons were not statistically significant. The 5-year primary patency was significantly higher for the senior surgeons than for the junior surgeons (97% vs 83%; $P < .01$, log rank; Fig).

Conclusions: OSR continues to provide successful treatment of aortoiliac occlusive disease with low mortality and excellent 5-year primary patency in our CC, despite the operations being technically more

Table. Comparison between HC (1999-2008) and CC (2009-2018) of OSR for AIOD

Variable	HC (n = 153)	CC (n = 92)	*P* value
Age, years	63.1 ± 8.0	61.5 ± 10.6	.209
BMI, kg/m^2	26.0 ± 5.1	26.2 ± 4.6	.783
Male sex	100 (65.4)	46 (50.0)	.013
Smoker			.562
Current	92 (60.1)	57 (62.0)	
Former	55 (36.0)	29 (31.5)	
Never	6 (3.9)	6 (6.5)	
Indication			
Claudication	113 (73.9)	55 (59.8)	.088
CLTI	40 (26.1)	37 (40.2)	
Previous intervention	25 (16.3)	29 (31.5)	**.005**
Clamp site			**.006**
Infrarenal	99 (64.7)	45 (48.9)	
Suprarenal	26 (17)	34 (37)	
Supramesenteric	18 (11.8)	12 (13.0)	
Supraceliac	10 (6.5)	1 (1.1)	
Concomitant endarterectomy	117 (76.5)	79 (85.9)	**.05**
OR time, minutes	378 ± 123.1	495.9.3 ± 126.6	<.001
Hospital LOS, days	9.1 ± 9.1	10.0 ± 12.7	.788
30-Day readmission rate	21 (13.7)	11 (12.0)	.417
30-Day mortality	2 (1.3)	0 (0.0)	
Clinical follow-up, months	91.0 ± 68.9	57.7 ± 38.4	<.001

AIOD, Aortoiliac occlusive disease; *BMI,* body mass index; *CC,* contemporary cohort; *CLTI,* critical limb threatening ischemia; *HC,* historical cohort; *LOS,* length of stay; *OR,* operating room; *OSR,* open surgical revascularization.
Data presented as mean ± standard deviation or number (%).
Boldface *P* values represent statistical significance.

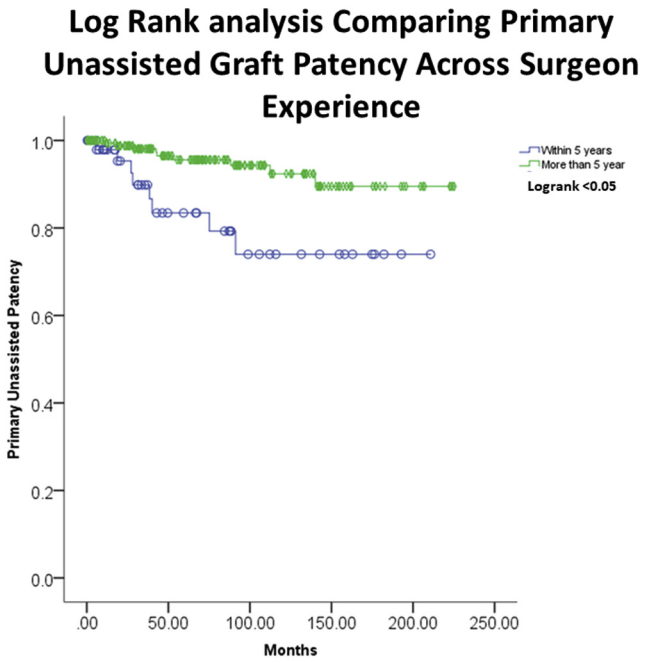

Fig. Log-rank analysis comparing primary unassisted graft patency across surgeon experience.