Food Insecurity is Associated with Poor Outcomes After Revascularization for Chronic Limb Threatening Ischemia

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Background

Social Determinants of Health (SDH) challenges have been associated with poor surgical outcomes.

Food insecurity is associated with peripheral artery disease among older adults.[1]

Patients with chronic limb threatening ischemia (CLTI) are often malnourished which can lead to increased morbidity, mortality, and amputation rates.[2]

There is very limited data on how food insecurity is associated with a patient's presentation, perioperative outcomes, and post operative outcomes in the context of CLTI.

Aim

Our goal was to assess the association of food insecurity at a safety net, tertiary hospital with outcomes after lower extremity revascularization for CLTI.

Methods

Retrospective, single center review of patients presenting for a lower extremity revascularization (2018-2022) at a safety-net, tertiary hospital.

Patients were classified as experiencing food insecurity, if self reported on a SDH screen, or had a food pantry referral within one year of their procedure.

Outcomes included were ED visits, readmission, reintervention, amputation, and death up to 1 year.

Univariable and multivariable analyses were performed

Demographics and Outcomes

Table 1: Prevalence of Adverse SDH in PAD

SDH Survey	% Positive
Food Insecurity	17.4%
Unstable Housing	12.8%
Trouble Getting Transportation	11.1%
Trouble Paying for Utilities	8.4%

Table 2: Demographics and Comorbidities

Covariate	- Food Insecurity	+ Food Insecurity	p
Age (mean±SD)	68±11.5	62.1±9.4	**<.001**
Male Sex (%)	57.9	55.8	.778
Race/Ethnicity (%)			.120
White	29.4	11.5	
Black	49.8	63.5	
Asian	1.2	1.9	
Insurance (%)			.075
Private	1.6	0	
Medicaid	41.3	57.7	
Medicare	57.1	42.3	
Obesity (%)	28.3	32.7	.530
Smoking (%)			**.003**
Never	28.3	30.8	
Former	42.5	19.2	
Current	29.2	50	
Diabetes (%)	73.3	76.9	.587
HTN (%)	88.3	86.5	.729

Table 3: Patient Presentation and Perioperative Outcomes

Outcome	- Food Insecurity	+ Food Insecurity	p
WIFi Stage (%)			.651
1	11.7	5.8	
2	22.7	23.1	
3	30.4	32.7	
4	35.2	38.5	
Previous Intervention for PAD (%)	30.4	26.9	.622
Endovascular Revascularization (%)	61.1	69.2	.273
Length of Stay (days, mean±SD)	5.8±6.4	5.9±4.3	.482
Perioperative Complications	25.1	21.2	.547

Table 4: Surgical Outcomes Stratified by Endovascular versus Open Surgical Procedure

Outcome	Endovascular			Open		
	Food Secure	Food Insecure	P-Value	Food Secure	Food Insecure	P-Value
Major Amputation (%)	15.2	40.0	**.001**	10.4	25.0	.102
30d ED Visit	32.5	52.8	**.023**	22.9	56.3	**.006**
30d Readmission	24.5	36.1	.157	18.8	43.8	**.026**
90d ED Visit	53.6	72.2	**.043**	39.6	68.8	**.029**
90d Readmission	47.7	61.1	.148	42.7	62.5	.141
1yr ED Visit	75.5	91.7	**.033**	64.6	100	**.004**
1yr Readmission	70.9	86.1	.062	70.8	100	**.013**
1yr Reintervention/ Amp	26.5	52.8	**.002**	30.2	50.0	.119
1yr MACE	19.2	36.1	**.029**	18.8	6.3	.217

Multivariable Analysis and Cox Regression

With model adjusting for age, sex, race, insurance, comorbidities, WIFi stage, and previous interventions, food insecurity was associated with:

- Younger age (OR .96, 95% CI: [.92-.99], p=.022)
- Black race (OR 3.8, 95% CI: [1.4-10.3], p=.01)

Adjusting for above factors and open vs endo revascularization, on cox regression (median length of follow-up 652 days, IQR 328-1172) at 1 year, food insecurity was associated with:

- Higher risk of amputation/death over time (HR 1.9, 95% CI 1.1-3.1, p=.013)

Conclusions

Food insecurity was common in our population of CLTI patients undergoing revascularization.

These patients were associated with higher ED visits, readmissions, and major amputations/death.

Screening and addressing food insecurity in these high-risk patients is an area for targeted improvement.

References

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