

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.

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

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

Aim

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.

Appendix 1: Social Determinants of Health Screening Tool

BOSTON MEDICAL CENTER
Thrive Screening

Please fill this form out and bring it to the exam room. You don't have to answer these questions but your answers will help us take better care of you. Thank you!

Please circle your answers:

Do you currently live in a shelter or have no steady place to sleep at night?	Yes / No
Do you think you are at risk of becoming homeless?	Yes / No
Within the past 12 months, the food you bought just didn't last and you didn't have money to get more.	Often true / Sometimes true / Never true
Within the past 12 months, you worried whether your food would run out before you got money to buy more.	Often true / Sometimes true / Never true
Is this an emergency, do you need food for tonight?	Yes / No
Do you have trouble paying for medicines?	Yes / No
Do you have trouble getting transportation to medical appointments?	Yes / No
Do you have trouble paying your heating or electricity bill?	Yes / No
Do you have trouble taking care of a child, family member or friend?	Yes / No
Are you currently unemployed and looking for a job?	Yes / No
Are you interested in more education?	Yes / No

Would you like help connecting to resources? Please circle below.

Housing / Shelter	Food	Paying for Medicines	Transportation to medical appointments	Utilities	Child care / Daycare	Care for Elder or disabled	Job Search / Training	Education
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I do not want to answer these questions

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Adapted from WE CARE Screening model

Results

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 (n=247)	+ Food Insecurity (n=52)	P-Value
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	
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
Obesity (%)	28.3	32.7	.530

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**)

Table 3: Surgical Outcomes Stratified by Endovascular versus Open Surgical Procedure

Outcome	Endovascular			Open		
	Food Secure (n=151)	Food Insecure (n=36)	P-Value	Food Secure (n=76)	Food Insecure (n=16)	P-Value
30d ED Visit	32.5%	52.8%	.02	22.9%	56.3%	.01
30d Readmission	24.5%	36.1%	.16	18.8%	43.8%	.03
90d ED Visit	53.6%	72.2%	.04	39.5%	68.8%	.03
90d Readmission	47.7%	61.1%	.15	42.1%	62.5%	.14
1yr ED Visit	75.5	91.7	.03	64.6	100	<.01
1yr Readmission	70.9	86.1	.06	70.8	100	.01

Cox Regression

Table 4: Multivariable analysis of the effects of food insecurity on various outcomes within one year of the index procedure

Outcomes	- Odds (OR) or Hazard (HR) Ratio	95% Confidence Interval	P-Value
ED Visit	6.42 (OR)	1.8-22.6	<.01
Readmission	4.23 (OR)	1.5-11.6	<.01
MALE	1.91 (HR)	1.2-3.1	<.01
Major Amputation	2.52 (HR)	1.3-4.8	<.01
Death	1.62 (HR)	.87-2.9	.13
MACE	2.00 (OR)	.88-4.5	.09

Conclusions

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

Food insecure 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.



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