The Effect of Preoperative Food Insecurity on Post-Operative Outcomes of Bariatric Surgery Patients

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Background

- Food Insecurity is defined by the United States Department of Agriculture as a household-level economic and social condition of limited or uncertain access to adequate food and is associated with obesity
- Bariatric surgery is the most successful long-term treatment for weight loss for diet resistant obesity
- Bariatric surgery requires strict dietary requirements
- Milwaukee County has a poverty rate of 16.9%
- Research is needed to understand if food insecurity increases the risk of post-operative complications of bariatric surgery

Aims

- To assess the rate of food insecurity of patients presenting for bariatric surgery consultation
- To achieve this aim, patients will be screened via telephone by medical student
- To compare 30-day post-operative complications of patients with food insecurity to those without food insecurity
- To achieve this aim, a retrospective study will be conducted of patients who have undergone bariatric surgery over an eleven-month period

Methods

- Review of literature was performed to identify previous research related to food insecurity and bariatric surgery complications
- Patient cohort was identified as bariatric surgery patients (Roux-en-Y gastric bypass and sleeve gastrectomy) between July 2020 and May 2021
- Patients were contacted via telephone to complete food insecurity screening questions (Table 1)
- Food insecurity data was matched to patient data including pre- and post-operative factors captured by the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) database.
- Analysis of data was performed using Microsoft Excel with statistical significance defined as $p \leq 0.05$

Methods

Table 1: Food Insecurity Screening Questions

Question/Statement	How hard is it for you to pay for the very basics like food, housing, medical care, and heating?	Within the past 12 months, you worried that your food would run out before you got money to buy more	Within the past 12 months, the food you bought just didn't last and you didn't have money to get more
Response Choice	Not hard at all Not very hard Somewhat hard Hard Very Hard Patient refused	Never true Sometimes true Often true Patient refused	Never true Sometimes true Often true Patient refused

Results

Table 2: Food insecurity Screens and Pre-Operative MBSAQIP Data

		Food Insecure n = 40	Food Secure n = 66	*p* value
Age (Avg ± SD)		42.8 ± 10.8	46.1 ± 11.8	0.15
BMI (Avg ± SD)		48.3 ± 5.8	48.9 ± 9.3	0.92
Race (n/%)	White	20 (50%)	47 (71.2%)	0.18
	Black	19 (47.5%)	18 (27.3%)	0.09
	Asian	1 (2.5%)	0 (0%)	0.20
	Other	0 (0%)	1 (1.5%)	0.44
Medical Conditions (n/%)	T2DM	13 (32.5%)	23 (34.8%)	0.94
	HTN	16 (40%)	30 (45.5%)	0.68
	OSA	18 (45%)	31 (47.0%)	0.89
Insurance Status (n/%)	Private	23 (57.5%)	53 (80.3%)	0.18
	Other (Medicare, Medicaid, Veterans)	17 (42.5%)	13 (19.7%)	0.03*
Surgery Type (n/%)	Sleeve Gastrectomy	24 (60%)	38 (57.6%)	0.87
	Gastric Bypass	16 (40%)	28 (42.4%)	0.85

T2DM Type 2 Diabetes Mellitus, HTN Hypertension, OSA Obstructive Sleep Apnea

Table 3: Food Insecurity Screens and Post-operative MBSAQIP Data

	Food Insecure n = 40	Food Secure n = 66	*p* value
Operative Length in Minutes (Avg ± SD)	128.1 ± 78.7	123.0 ± 55.6	0.70
Length of Stay in Hours (Avg ± SD)	53.2 ± 22.7	47.2 ± 14.9	0.10
ED/Urgent Care Visits (n/%)	6 (15.0%)	10 (15.2%)	0.98
Readmission (n/%)	5 (12.5%)	8 (12.1%)	0.96
Outpatient IV Treatment	13	9	0.04*

Discussion

- Data demonstrates that food insecurity is highly prevalent in the bariatric surgery population at 38%
- Food insecurity is not associated with an increased risk of 30-day post-operative complications
- Patients should not be denied access to bariatric surgery based on food security status
- Outpatient IV Treatment was used significantly more often by food insecure patients

Limitations:

- Selection bias of patients who were successfully screened via telephone for food insecurity
- Recall bias of patients screened retrospectively for food security status at the time of bariatric surgery

Future Work

- Follow patient cohort to 6 month and 1 year following surgery to determine mid- and long-term effect of food insecurity on weight loss, comorbidity resolution, and nutritional deficiency
- Perform cost analysis of pre-operative liquid diet to identify potential barriers to dietary adherence

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