RECENT TRENDS AND MORTALITY OUTCOMES AMONG INFLAMMATORY BOWEL DISEASE PATIENTS WITH AND WITHOUT OBESITY

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INTRODUCTION

Inflammatory bowel disease (IBD) comprises crohn's disease and ulcerative colitis. Severe obesity (SO) is defined as body mass index (BMI) >40 kg/m2. Obesity is a known risk factor for developing IBD due to accumulation of intra-abdominal fat, cytokine production, alteration of gut microbiome contributing to mucosal inflammation. Using the National Inpatient Sample (NIS), our study examines trends and mortality outcomes among IBD patients with and without SO

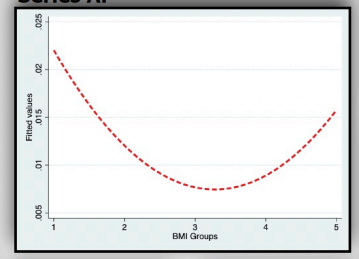
METHODS

- The NIS database was used to identify patients (pts) aged ≥18 years with diagnosis of IBD using ICD-10 codes between 2016-2019.
- Chi square, ANOVA, and multivariate regression were used to compare significant associations with variables and primary outcome of mortality among pts with IBD stratified by BMI >40(Severe Obesity-SO) and < 40kg/m2 (Non- severe obesity) .
- Propensity Score Matching was used to assess the effect of SO and history of bariatric surgery on the outcome of death.
- STATA MP 17 software was used for analysis.

RESULTS

- Of the 222,203 pts meeting inclusion criteria, 13,931 (69.61% female; mean age: 54) had SO and 217,633(55.85% female; mean age: 54) without SO (p=0.23).
- There was a positive temporal relationship in death rate over time and SO (p=0.00); but a significant negative relationship generally within the IBD population(p=0.02).
- There was a positive trend in bariatric surgery over time within the general IBD population (p=0.00)and among the IBD-SO subpopulation (p=0.00).
- Adjusted odds (aOR) of death were 46.73% higher among tho se with severe obesity compared to other BMI groups (95%CI 1.180-1.865, p=0.00).
- In propensity score matching analysis, there was a 2.40% higher risk of death in patients with SO compared to non-SO patients(p= 0.03).
- History of bariatric surgery was associated with 0.70% (p=.026) and 0.85%(p=.01) decreased risk of death in the IBD population and the SO subpopulation compared to those without a history of bariatric surgery, respectively
- Results from our study demonstrate that 1) The odds of having bariatric surgery increases with increasing BMI. Patients with severe obesity have 46% higher odds of having bariatric surgery compared to those without severe obesity in our study (p=0.00) 2) There are 42% higher odds of having had bariatric surgery if the patient has had a colectomy compared to those without colectomy, and finally 3) The odds that a patient has had a colectomy are 12.8% lower in the severe obesity group compared to the group without severe obesity.

Series A.



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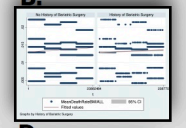

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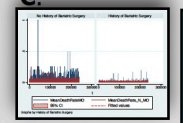

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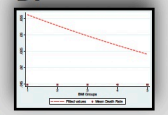

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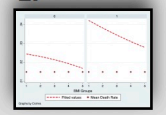
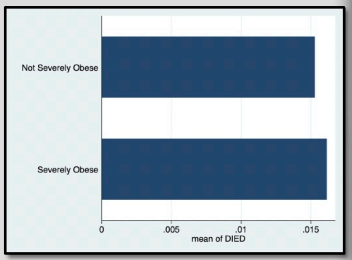


Series A.: Mean death rate stratified by weight group(left). Breakdown of total discharges in the universe over time by weight group (right).

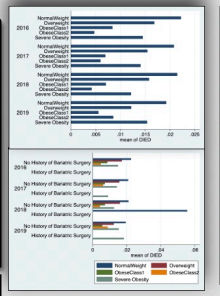
B. Mean mortality stratified by weight group
C. Density plot of mean death rate stratified by weight history of bariatric surgery
D. Noninfectious colitis mean incidence within IBD population.
E. Mean Noninfectious colitis mean incidence stratified by IBD subtype

DISCUSSION

Among IBD pts, severe obesity was associated with increased mortality compared non severe obesity. Nonetheless, bariatric surgery within the entirety of the population was associated with decreased mortality. There may be some mortality benefit associated with higher weights as both obesity class I and obesity class II were associated with lower mortality-possibly related to medication side effects or markers of well controlled disease as weight loss itself was associated with increased odds of mortality. More studies are warranted to analyze efficacy of bariatric surgery in other BMI groups.



F. .Mean death rate for all hospitalizations within the IBD population from 2012-2019 by severe obesity status



G. Mortality rate for all hospitalizations within the IBD population from 2016-2019 by weight group

H. Mortality death rate stratified by history of bariatric surgery and WHO weight group

Demographics Results

	SEVERE OBESITY YES	SEVERE OBESITY NO
FREQUENCY	13,931	217,633
MEAN (SD)		
Age in years at admission (SD)	54.54**(0.14)	54.05** (.08027)
Length of stay (SD)	5.701** (0.061)	5.165** (0.02)
Total charges (SD)	61678.96**(936.39)	54495.4** (492.93)
FACTOR VARIABLE PERCENT		
Died during hospitalization	1.40%	1.40%
AGE, RACE, & SEX		
AGE 18-29	5.54% **	12.95% **
AGE 30-54	41.87% **	36.16% **
AGE 55-64	23.39% **	16.93% **
AGE 65-119	29.20% **	33.96% **
WHITE	79.69% **	79.65% **
BLACK	13.05% **	11.04% **
HISPANIC	4.64% **	5.60% **
ASIAN/PACIFIC ISLANDER	0.32% **	1.14% **
NATIVE AMERICAN	0.61% **	0.35%**
OTHER RACE	1.68% **	2.22%**
MALE	30.39% **	44.15%**
FEMALE	69.61%**	55.85%**
PRIMARY EXPECTED PAYER		
Medicare	46.65%**	43.13%**
Medicaid	15.04%**	14.58%**
Private Insurance	33.52%**	35.91%**
Self-pay	2.51%**	3.39%**
No charge	0.26%**	0.34%**
Other	2.03%**	2.64%**
LENGTH OF STAY		
Less than 30 days	98.83%**	99.05%**
30-59 days	0.98%	0.81%**
60-119 days	0.18%**	0.11%**
120-364	0.01%**	0.02%**
BED SIZE OF HOSPITAL		
Small	20.21%**	19.57%**
Medium	28.40%**	27.98%**
Large	51.39%**	52.45%**

	SEVERE OBESITY YES	SEVERE OBESITY NO
TOTAL CHARGE CATEGORICAL		
Less than 50k	64.17%**	68.72%**
50000-99,999	21.79%**	19.53%**
100k-249,999	11.28%**	9.56%**
250k-499,999	2.24%**	1.76%**
500k-1m	0.529**	0.43%**
LOCATION & TEACHING STATUS OF HOSPITAL		
Rural	8.00%**	7.35%**
Urban Non-Teaching	21.13%**	19.89%**
Urban Teaching	70.86%**	72.76%**
Northeast	18.54%**	21.72%**
Midwest	29.93%**	24.80%**
South	36.53%**	36.56%**
West	15.00%**	16.93%**
FACTOR VARIABLE PERCENT		
Congestive Heart Failure	21.99**	10.83%**
Cardiac Arrhythmias	22.19%**	17.60%**
Valvular Disease	4.92%	4.75%
Pulmonary Circulation Disorders	7.44%**	3.37%**
Peripheral Vascular Disorders	5.86%	5.67%
Other Neurological Disorders	9.20%	8.97%
Uncomplicated Diabetes	16.90%**	7.96%**
Complicated Diabetes	25.07%**	8.88%**
Liver Disease	9.48%**	6.84%**
Metastatic Cancer	1.41%**	2.30%**
Coagulopathy	7.54%**	6.61%**
Weight Loss	5.11%**	13.21%**
Fluid & Electrolyte Disorders	35.48%**	37.39%**
Iron Deficiency Anemia	7.98%	8.36%
Drug Abuse	5.35%**	7.33%**
Depression	25.73%**	18.79%**
Long-term Steroid Use	5.69%**	6.17%**
Long-term Remicade	15.72%**	14.74%**
Long-term Anticoagulation	10.91%**	7.19%**
History of Colectomy	14.61%**	16.34%**
History of Bariatric Surgery	3.04%**	0.78%**

TABLE LEGEND:

**: P less than or equal to .05

Matched Sample Analysis: IBD Population

SEVERE OBESITY	YES (CI)	NO (CI)
FREQUENCY	13,360	21,350
DIED	1.37% (.0108- .0139) **	1.231 (.0118 - .0158) **
Mean (SD)		
Age in years at admission	54.52013(.14) **	55.58834 (0.14) **
Length of stay	5.71 (.061) **	6.28281 (.05) **
Total charges	61970.03 (978.97) **	64792.88 (805.86) **

Matched Sample Analysis: IBD Population

History of Bariatric Surgery	Yes (CI)	No (CI)
FREQUENCY	2,032	220,171
DIED	0.69%**	1.40%**
Age in years at admission	53.39 (0.30) **	54.17 (0.08) **
Length of stay	4.87 (.12) **	5.20 (0.02) **
Total charges	54250.14 (1670.12) **	55050.96 (487.44) **

TABLE LEGEND:

**: P less than or equal to .05