Obesity is Associated with a Complicated Episode of Acute Diverticulitis: A Nation-Wide Study

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Background:

- **Acute diverticulitis** incidence continues to rise in western societies.
- There is an increasing incidence of **obesity**
- Crucial to understand impact of obesity of diverticulitis.
- We aim to study the association between obesity and complicated acute diverticulitis

Methodology:

- Data source: Nationwide Inpatient Sample data from 2005–2016
- Inclusion: admitted adult patients with acute episode of diverticulitis
- Variables: Patient and disease factors, and co-morbidities (including hypertension, hyperlipidemia and diabetes) used ICD-9/10 codes.
- **Exclusion**: elective admissions for surgery for diverticulitis, patients with malignant neoplasms of the colon, carcinoids of the colon and inflammatory bowel disease.
- **Exposure:** Obesity
- **Primary Outcome**: complicated diverticulitis (including obstruction, perforation, peritonitis, abscess percutaneous drain placement)

- Secondary outcomes length of hospital stay, and cost of hospitalization.
- Statistics: Crude and adjusted logistic, and linear regressions. Covariates for the models were chosen *a priori* based on clinical knowledge.

Results:

- **22.6%** of admissions were for **complicated diverticulitis.**
- Patients with complicated diverticulitis were likely to be **obese** (10.9% vs. 9.9%, p<0.001), **62.9% were males** (vs. 57.9%, p<0.001), **smokers** (16.8% vs. 13.5%, p<0.001), 51.5% had **hypertension** (vs. 42.5%, p<0.001), and **depression** (12.4% vs. 8.6%, p<0.001).
- Crude analysis: **obese** patients had **longer LOS** (5.2±5.0 vs. 4.9±5.1, p<0.001) and **higher costs associated with admission.**
- Multivariable logistic regression (adjusted for age, gender, smoking, immunosuppression, and co-morbidities): **obesity was independently associated with admission for complicated diverticulitis** (OR 1.21, 95%CI 1.18–1.23).
- Multivariable linear regression showed **obesity was independently associated with a small increase in LOS** of 0.35 (95%CI 0.31-0.39) days and increased cost of $5,602.77 (95%CI $5,251–$5,953.59) for admission for acute diverticulitis.

Crude comparison

	Obese	Non obese	P
Total charge ($)	35330.57 +/- 50066.87	28965.34 +/- 42314.8	<0.001

	Obesity= No 79 (30.9)	Obesity=Yes 176 (96.0)	
Age	61.9 (+/- 11.3)	59.3 (+/- 13.0)	0.104
WBC	12.4 (+/- 4.3)	12.3 (+/- 4.0)	0.979
Family Hx	35 (44.3)	71 (40.3)	0.648
Male	26 (32.9)	91 (51.7)	0.008
HTN	23 (29.1)	81 (46.0)	0.016
DLP	25 (31.6)	58 (32.9)	0.95
DM	6 (7.5)	42 (23.8)	0.003
Smoking	13 (16.4)	20 (11.3)	0.358
Free fluid	3 (3.7)	7 (3.9)	1
Phlegmon	4 (5.0)	6 (3.4)	0.779
Abscess	14 (17.7)	14 (7.9)	0.036
CVS	28 (35.4)	72 (40.9)	0.491
CRF	1 (1.2)	3 (1.7)	0.999
Recurrence	40 (50.6)	62 (35.2)	0.028

Conclusion:

Obesity is significantly associated with a complicated episode of acute diverticulitis and increased cost of hospitalization. Factors to mitigate obesity may have an impact on diverticulitis disease presentation and severity.