

Interactions Between Race and Pre-Operative Morbid Obesity Co-Morbidities in 8,966 Sleeve Gastrectomy Patients from the BOLD Database



J Diaz, DO and GJ Slotman M.D.
Department of Surgery, Inspira Health Network, Vineland, NJ

Abstract

Background: In the obesity epidemic, weight-related medical problems complicate surgical stress. Every clinical insight helps, but the distribution of obesity co-morbidities across racial groups is unknown.

Objective: To identify pre-op clinical variations between morbidly obese African-Americans, Caucasians, Hispanics, Asians, and Other racial groups.

Methods: Pre-operative data on 8,966 sleeve gastrectomy patients from the Surgical Review Corporation's BOLD database was examined in five groups: African-American (n=936), Caucasian (n=6708), Hispanic (n=816), Asian (n=30), and Other (n=476). Statistics were by analysis of variance and the Chi-squared equation.

Results: African-Americans had highest BMI (49+-10), female/male% (87/13), hypertension (61%), CHF (3.3%), irregular menses (24%), gout (4.3%), and unemployment (15.71%) (p<0.05 BMI & CHF; all others p<0.001). Caucasians were eldest (46+-11 years), and had greatest sleep apnea (44%), cholelithiasis (20%), GERD (45%), depression (38%), hyperlipidemia (42%), psychological impairment (19%), incompetent bladder (22%), and alcohol use (36%) (all p<0.01). Except for high liver disease (8.1%), most obesity co-morbidities were lower in Hispanics vs African-Americans and Caucasians. Asian hypertension was 60%, and liver disease (10%), ischemic heart disease (6.7%), peripheral vascular disease (3.3%), obesity hypoventilation (3.3%), and asthma (20%) were highest (p<0.001).

Conclusions: Medical issues vary by race. These findings should be considered in managing morbidly obese surgical patients. The racial differences found in this study could enable surgeons to have objectively increased medical index of suspicion in patients of different racial backgrounds, and thereby lead to improved patient management.

Introduction

Sleeve gastrectomies have become more popular with addressing weight reduction than other restrictive surgical procedures in the morbidly obese patients. Patients undergoing these procedures often suffer from many co-morbidities. Racial groups differ in terms of prevalence of these co-morbidity.

	African American	Caucasian	Hispanic	Asian	Other	p-Value
Abdominal Hernia	5.13	6.95	4.17	6.67	3.36	<0.001
AbdSkinPannus S&S	4.91	9.06	5.64	6.67	3.99	<0.001
Cholelithiasis	12.39	19.89	14.83	13.33	11.55	<0.001
GERD	35.68	45.41	32.84	36.67	40.97	<0.001
Liver Disease	3.85	4.93	8.09	10	1.47	<0.001
StressUrinaryIncontinent	15.38	22.32	17.03	6.67	20.59	<0.001

	African American	Caucasian	Hispanic	Asian	Other	p-Value
Obstructive sleep apnea	39.64	44.41	39.46	26.67	36.55	<0.001
Obesity Hypoventilation	1.39	1.45	0.98	3.33	1.89	0.67
Asthma	17.09	15	15.32	20	18.28	0.17

	African American	Caucasian	Hispanic	Asian	Other	p-Value
Back Pain	43.06	45.32	39.83	26.67	46.01	<0.01
Fibromyalgia	1.39	3.09	1.23	0	2.1	<0.01
Lower Extremity Edema	28.1	28.46	18.63	23.33	30.04	<0.001
Musculoskeletal Pain	36.43	40.04	31	23.33	46.01	<0.001

Methods and Materials

8,966 sleeve gastrectomy patients, in five groups, were examined using data from the Surgical Review Corporation's BOLD database. These groups were distributed based on race

	African American	Caucasian	Hispanic	Asian	Other	p-Value
Alcohol Use	33.01	36.09	36.09	20	23.53	<0.001
Substance Abuse	0.32	0.24	0.24	0	0	0.09
Tobacco Use	4.91	7.54	7.54	3.33	3.99	<0.001
Employed	66.99	62.91	62.91	76.67	54.62	<0.001

Results

Results: African-Americans had highest BMI (49+-10), female/male% (87/13), hypertension (61%), CHF (3.3%), irregular menses (24%), gout (4.3%), and unemployment (15.71%) (p<0.05 BMI & CHF; all others p<0.001). Caucasians were eldest (46+-11 years), and had greatest sleep apnea (44%), cholelithiasis (20%), GERD (45%), depression (38%), hyperlipidemia (42%), psychological impairment (19%), incompetent bladder (22%), and alcohol use (36%) (all p<0.01). Except for high liver disease (8.1%), most obesity co-morbidities were lower in Hispanics vs African-Americans and Caucasians. Asian hypertension was 60%, and liver disease (10%), ischemic heart disease (6.7%), peripheral vascular disease (3.3%), obesity hypoventilation (3.3%), and asthma (20%) were highest (p<0.001)

	African American	Caucasian	Hispanic	Asian	Other	p-Value
%						
Hypertension	61.32	56.16	42.03	60	48.32	<0.001
Angina	2.56	2.68	1.59	0	1.05	0.07
CHF	3.31	1.94	0.98	0	2.87	<0.05
DVT/PE	2.99	2.76	1.96	0	1.47	0.22
Ischemic Heart Disease	2.99	4.19	2.33	6.67	2.73	<0.05
Peripheral Vasc Disease	1.07	1.04	0.49	3.33	0.42	0.23
Pulmonary Hypertension	3.53	4.38	2.33	0	3.78	<0.05

	African American	Caucasian	Hispanic	Asian	Other	p-Value
MentalHealthDiag	5.98	12.06	7.97	6.67	5.04	<0.001
DisabledFunctStatus	3.42	3.49	1.59	0	1.68	0.01
Depression	20.3	37.73	22.06	30	17.23	<0.001
PsychologicImpair	10.15	18.78	12.5	10	7.56	<0.001

	African American	Caucasian	Hispanic	Asian	Other	p-Value
Diabetes	29.59	31.05	30.64	33.33	26.26	0.25
Gout	4.27	3.8	2.08	0	3.78	0.08
Hyperlipidemia	30.13	41.55	28.68	40	35.08	<0.001
Irregular Menses	24.15	23.35	16.54	13.33	10.29	<0.001
Polycystic Ovary Disease	4.91	5.08	4.66	3.33	2.73	0.23
PseudotumorCereb	1.5	1.03	1.35	0	0.21	0.1987

Discussion

Obesity alone does not faithfully describe the other ailments patient may bring to the operating room. These ailment, or co-morbidities, should be anticipated when dealing with pre and post operative care of the surgical patients. Better understanding of what co-morbidity is prevalent in the different racial groups undergoing sleeve gastrectomies may help in better patient outcome following these procedures.

Conclusions

The data analyzed demonstrates medical issues varying by race in patients undergoing sleeve gastrectomies, as gathered by the BOLD database. Knowing this can be helpful in making medical decisions on post-operative care for morbidly obese patients undergoing this procedure.

	African American	Caucasian	Hispanic	Asian	Other	p-Value
N	936	6708	816	30	476	
Age	43+-11	46+-11	40+-11	41+-9	43+-11	<0.05 Caucasian versus all
Weight (kg)	136+-33	134+-31	130+-33	125+-26	137+-32	<0.05
BMI	49+-10	47+-9	47+-10	45+-7	48+-10	<0.05
Sex (F/M)	87/13	73/27	71/29	67/33	72/28	<0.001

Contact

Jose Diaz
Inspira Health Network
Email: Jose.diaz@nv.touro.edu
Website:
Phone:

References

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