

# IN THE MEGA-OBESE WEIGHT LOSS, BMI AND RESOLUTION OF WEIGHT-RELATED MEDICAL PROBLEMS AFTER BILIOPANCREATIC BYPASS/DUODENAL SWITCH VARY BY RACE: AN ANALYSIS OF 1,673 BOLD DATABASE PATIENTS

Paul A. Boulos, D.O. and Gus J. Slotman, M.D.  
Department of General Surgery, Inspira Health Network, Vineland, NJ



## INTRODUCTION

Biliopancreatic bypass/duodenal switch (Duodenal Switch) is the bariatric operation of choice for many of the most extremely obese patients. Duodenal Switch results for weight loss and resolution of obesity co-morbidities among the mega-obese are known. Variation by race for pre-operative weight, BMI, and the frequencies of obesity co-morbidities in patients presenting to have Duodenal Switch has been reported. However, whether or not treatment responses to Duodenal Switch differ according to racial categories has not been investigated.

## OBJECTIVES

To identify racial variations following Duodenal Switch in weight, weight loss, and BMI, and the resolution of obesity co-morbidities.

## METHODS

Data from the Surgical Review Corporation's BOLD database on 1,673 patients who underwent Duodenal Switch was analyzed retrospectively in four groups: African-American (n=131), Caucasian (n=1,380), Hispanic (n=48), and Other (Pacific Islanders, Native Americans, or >1 race recorded; n=108). Six Asian Duodenal Switch patients in BOLD were too few for statistical analysis. Weight, BMI, and incidence of obesity-related co-morbidities were tabulated in each of the five racial groups pre-operatively at 2, 6, 12, 18, 24, and 36 months following DS surgery.

Outcomes analysis used General Linear Models that included baseline and post-operative data, and were modified for binomial distribution of dichotomous variables. Pair-wise comparisons of results for the African-American, Caucasian, Hispanic and Other groups versus each other were made at each interval.

	Months	Caucasian	African American	Hispanic	Other	P Value
Weight loss (kg)	12	57+-17	68+-17	53+-28	59+-18	p<0.01
BMI	6	37+-7	42+-8	37+-7	37+-7	p<0.05
Cholelithiasis (%)	12	49.07	25.71	33.33	17.65	p<0.01
Hyperlipidemia (%)	12	16.11	11.43	44.44	32.35	p<0.05
Diabetes (%)	6	18.13	15.07	26.09	17.74	p<0.05
Asthma (%)	6	18.24	15.07	17.39	30.65	p<0.05
Hypertension (%)	6	39.19	47.95	43.48	48.39	p<0.01
Weight (%)	12	89+-21	96+-23	80+-24	86+-15	p<0.01
Stress Urinary Incontinence (%)	6	26.24	12.33	26.09	33.87	p<0.01
Abdominal Skin and Panniculitis (%)	12	25.37	14.29	33.33	2.94	p<0.05

## RESULTS

Pre-operative weight (kg) for African-Americans, Caucasians, Hispanics and Other was 161+-31, 148+-32, 145+-33, and 150+-33, respectively (p<0.05), and BMI was 57+-10, 52+-9, 53+-11, and 52+-9, respectively (p<0.01). Decreasing numbers of African American, Hispanic, and Other patients in follow-up precluded statistical analysis beyond 18 months. African-American weight loss was greatest at 12 months but their weight was highest also (p<0.01), as was BMI at 6 months (p<0.01). African-American 6 month asthma, stress urinary incontinence, diabetes, back pain, lower extremity edema, and musculoskeletal pain were lowest (p<0.05), as was 12 month dyslipidemia (p<0.05). Caucasian hypertension at 6 months was lowest (p<0.01), but 6 month liver disease and musculoskeletal pain were highest (p<0.05), as was 12 month cholelithiasis (p<0.01). Diabetes, dyslipidemia, and lower extremity edema were highest among Hispanics at 6 months (p<0.05) as was 12 month abdominal skin problems/panniculitis (p<0.05). Following duodenal switch, among Hispanic patients the incidence of GERD, stress urinary incontinence, lower extremity edema, depression, and alcohol use all increased, the frequency of diabetes nearly doubled, and pulmonary hypertension tripled from baseline, while these parameters declined in the other racial groups. Stress urinary incontinence, asthma, and back pain were highest among the Other group (p<0.01) and dyslipidemia was second only to Hispanics. Liver disease was lowest among Other patients, compared to African American, Hispanic and Caucasian (p<0.05). Liver disease increased from the pre-operative percentages in African-Americans, Caucasians, and Hispanics but decreased in Other patients. Early 2 month depression was highest in Caucasians and lowest in the Other group. Outcomes for angina, congestive heart failure, peripheral vascular disease, pulmonary hypertension, obstructive sleep apnea, obesity hypoventilation syndrome, abdominal hernia, GERD, gout, polycystic ovarian disease, pseudotumor cerebri, psychological impairment, alcohol use, substance abuse, tobacco use, and support group attendance did not vary by race.

## CONCLUSIONS

In the first 12 months after surgery, weight, weight loss, BMI and the resolution/persistence of weight-related co-morbidities vary significantly by race among the mega-obese patients who choose to undergo Duodenal Switch. African-Americans lose the most weight, but remain heavier than other racial groups, possibly related to higher pre-operative body mass. Nevertheless, African-Americans experienced the greatest resolution of seven obesity co-morbidities. Caucasians resolved hypertension well, but musculoskeletal and hepato-biliary conditions persisted. Hispanic patients benefited somewhat less from Duodenal Switch than did the other racial categories. The Other grouped nationalities benefited less for stress urinary incontinence, asthma, back pain and dyslipidemia, but did well with obesity-related liver disease. Whether or not these findings hold true for longer term outcomes after Duodenal Switch is not clear from the data and will require follow-up in larger populations of African-American and Hispanic patients. Knowing these racial variations in Duodenal Switch outcomes pre-operatively may help to optimize the management of mega-obese patients.