

Marceau P; Hould FS; Simard S; Lebel S; Bourque RA; Potvin M, Biliopancreatic diversion with duodenal switch., *World journal of surgery*. 1998 Sep;22(9):947-54

Biliopancreatic diversion with duodenal switch

Marceau P, Hould FS, Simard S, Lebel S, Bourque RA, Potvin M, Biron S.

Department of Surgery, Laval Hospital, Laval University, Quebec, Canada.

In 1990 Scopinaro's technique of biliopancreatic diversion with distal gastrectomy (DG) and gastroileostomy was modified. A sleeve gastrectomy with duodenal switch (DS) was used instead of the distal gastrectomy; and the length of the common channel was made 100 cm instead of 50 cm. A questionnaire and a prescription for blood work were sent to 252 patients who underwent DG a mean 8.3 years ago (range 6-13 years) and 465 patients who underwent DS 4.1 years ago (range 1.7-6.0 years). The questionnaire response rate was 93%, and laboratory work was completed for 65% of both groups. The mean weight loss after DG was 37 +/- 21 kg and after DS 46 +/- 20 kg. There were fewer side effects after DS: The number of daily stools was lower ($p < 0.0002$), as was the prevalence of diarrhea ($p < 0.01$), vomiting ($p < 0.001$), and bone pain ($p < 0.001$). Greater benefits related to several aspects of life were reported after DS than DG ($p < 0.0001$). The mean serum levels of ferritin, calcium, and vitamin A were higher ($p < 0.001$), and parathyroid hormone was lower. The yearly revision rate for excessive malabsorption was 1.7% per year after DG and 0.1% per year after DS. The two procedures were equally efficient for treating co-morbid conditions such as diabetes, hypertension, and hypercholesterolemia. Biliopancreatic diversion with sleeve gastrectomy/duodenal switch and a 100-cm common limb was shown to produce greater weight loss with fewer side effects.

PMID: 9717420 [PubMed - indexed for MEDLINE]

SUMMARY OF REPORTED RESULTS

Initial Characteristics of patients before BPD and BPD/DS:

Characteristic	BPD	BPD/DS
N	223	457
Age	37 +/- 9	37 +/- 10
Height (cm)	163 +/- 9	163 +/- 9
Weight (kg)	122 +/- 26	126 +/- 28
BMI	46 +/- 9	47 +/- 9
Excess Weight (%)	101 +/- 37	105 +/- 39

Operative Mortality and morbidity and delayed mortality rates after BPD & BPD/DS:

Parameter	BPD	BPD/DS
Operative Mortality	1.6%	1.9%
Operative Morbidity	16.7%	16.3%
Delayed Morbidity	2.4%	1.9%

Operative morbidity rate (by type):

Parameter	BPD	BPD/DS
Gastric retention	9.1%	6.2%
Pulmonary	3.6%	1.7%
Abdominal Abscess	0.4%	2.4%
Pancreatitis	0.8%	1.7%
Abdominal fistula	0.8%	1.7%
Wound infection	0.8%	1.0%
Others	2.0%	1.9%

Operative Mortalities:

Parameter	BPD	BPD/DS
Anastomotic leak and sepsis	1	4
Pancreatitis	2	0
Pulmonary embolus	1	3
Sleep Apnea		1
Malignant hyperthermia		1

Delayed Mortalities:

Parameter	BPD	BPD/DS
Cardiac	2	1
Cancer	2	1
Stroke		1
Pulmonary embolism		1
Septicemia		1
Complications following reoperation	1	3
Cirrhosis	1	
Suicide		1

Weight loss after BPD and BPD/DS:

Parameter	BPD	BPD/DS
Mean follow-up (months)	100 +/- 20	51 +/- 25
Present weight (kg)	85 +/- 18	80 +/- 18
Obesity (%)	40 +/- 27	31 +/- 30
BMI (kg/m ²)	32 +/- 6	30 +/- 7
Weight loss (%)	30 +/- 12	36 +/- 10
Excess weight loss (%)	61 +/- 22	73 +/- 21
Weight loss (kg)	37 +/- 21	46 +/- 20
Maximum Weight loss (kg)	48 +/- 21	53 +/- 20

Eating Habits:

Parameter	BPD	BPD/DS
Significant Food Restriction	14%	9%
Vomiting at least once per week	15%	6%

Side effects:

Parameter	BPD	BPD/DS
Abdominal Bloating	38%	36%
Diarrhea	14%	7%
Stool Odor	43%	34%
Liquid Stool Consistency	29%	20%
Heartburn / Abdominal pain	15%	15%
Bone Pain	41%	29%
Frequency of bowel movements	58%	40%

Blood tests:

Parameter	Pre-Op	BPD	BPD/DS
Iron Deficiency	13%	20%	9%
Low serum ferritin	4%	40%	25%
Low serum calcium	4%	16%	8%
High PTH	-	30%	17%
Vitamin A	-	12%	5%
Hemoglobin	2%	9%	6%
Vitamin B12	3%	3%	3%
P	0%	4%	2%
AlkPh	2%	3%	3%

Malnutrition:

Parameter	BPD	BPD/DS
Revision Rate	1.7%	0.1%
Hospitalization Rate	1.72%	0.93%