INCONTRO CONGIUNTO

3° Workshop SICOb – SID – SIO - 7 marzo 2014

L'integrazione tra terapia medica e chirurgica nel trattamento del paziente obeso diabetico

1°Corso SICOb – SID – SIO - 8 marzo 2014

Il management peri-operatorio del paziente obeso diabetico

Congiunto SICOb – SIO – SID 2014

PADOVA, 7/8 marzo

Aula Magna,
Dipartimento Militare
di Medicina Legale
Ex Ospedale Militare Padova

Con il patrocinio di

RECIDIVE DEL DIABETE DOPO CHIRURGIA

RE-DO SURGERY?

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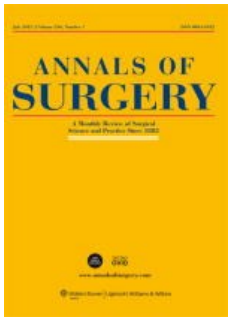
Azienda Ospedaliera - Universita' di Padova



Can Diabetes Be Surgically Cured?

Long-Term Metabolic Effects of Bariatric Surgery in Obese Patients with Type 2 Diabetes Mellitus

Stacy A. Brethauer, MD, Ali Aminian, MD,* Héctor Romero-Talamás, MD,* Esam Batayyah, MD,* Jennifer Mackey, RN,* Laurence Kennedy, MD,† Sangeeta R. Kashyap, MD,† John P. Kirwan, PhD,† Tomasz Rogula, MD,* Matthew Kroh, MD,* Bipan Chand, MD,‡ and Philip R. Schauer, MD**

TABLE 1. Definitions of Glycemic Outcomes after Bariatric Surgery*

Outcome	Definition
Complete remission	Normal measures of glucose metabolism (A1C <6%, FBG <100 mg/dL) for 1 yr in the absence of antidiabetic medications.
Partial remission	Sub-diabetic hyperglycemia (A1C 6%–6.4%, FBG 100–125 mg/dL) for 1 yr in the absence of anti-diabetic medications.
Improvement	Significant reduction in A1C (by >1%) or FBG (by >25 mg/dL) OR reduction in A1C and FBG accompanied by a decrease in antidiabetic medication requirement (by discontinuing insulin or 1 oral agent, or 1/2 reduction in dose) for at least 1-yr duration.
Unchanged	The absence of remission or improvement as described earlier.
Recurrence	FBG or A1C in the diabetic range (≥126 mg/dL and ≥6.5%, respectively) OR need for antidiabetic medication after initial complete or partial remission.

*Criteria adapted from references 7 and 15.

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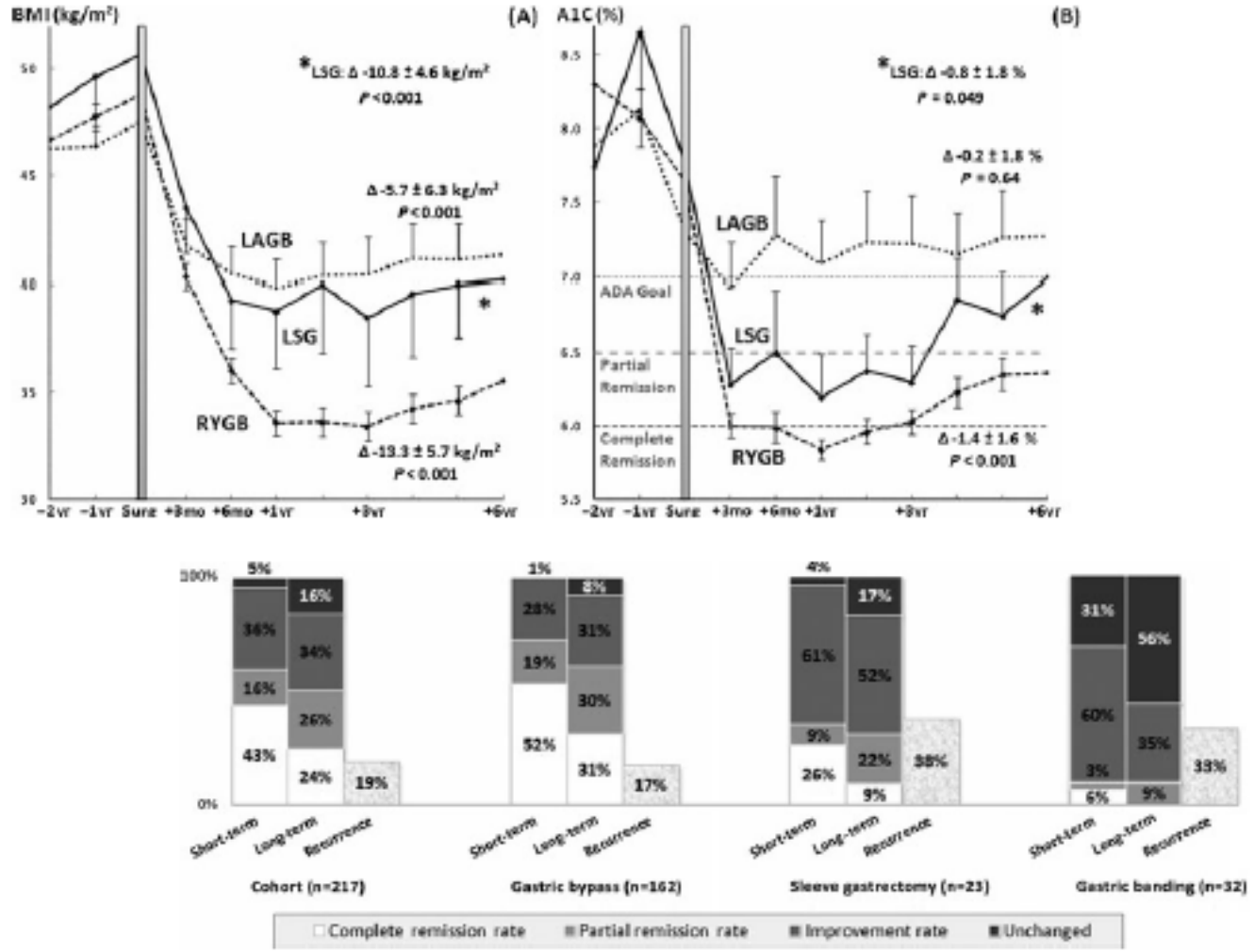
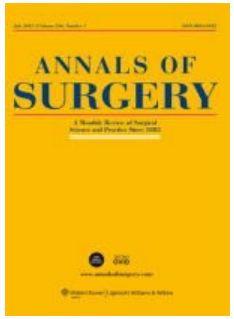
TABLE 6. Long-term Bariatric Surgery Studies Reporting Biochemical Evidence of Type 2 Diabetes (T2DM) Remission

Author	Study Design	*N* Procedure	Follow-up Time (yr) and Rate (%)	A1C Definition of Complete Remission	Remission Rates
Adams et al[21]	P	418 RYGB (93 T2DM)	6 (93%)	<6.5%	62% complete
		417 nonsurgical obese control (106 T2DM)	6 (73%)		8% complete
		321 population-based control (92 T2DM)	6 (97%)		6% complete
Sjostrom et al[34]	P	641 band, VBG, RYGB	10 (75%)	NR	36%
		627 matched controls	10 (74%)		13%
Arterburn et al[30]	R	4434 RYGB	5 (68%)	<6.0%	68% complete 9% partial
Cohen et al[11]	P	66 RYGB	6 (100%)	<6.5%	88% complete 11% partial
Lakdawala et al[22]	P	52 RYGB	5 (100%)	<7.0%	58% complete 38% partial
Heneghan et al[36]	R	52 RYGB, LSG, LAGB	5 (NR)	<6.5%	44% complete 33% partial
Sultan et al[28]	R	95 LAGB	5 (85%)	<6.0%	40% complete 40% partial
Scopinaro et al[23]	R	312 BPD	10 (85%)	NR	97%
Pontiroli et al[24]	R	23 BPD	5.5 (NR)	NR	100%
		78 LAGB			66%
		37 Control			None
Marceau et al[25]	R	1356 DS (377 T2DM)	7 (97%)	NR	92%
Brethauer et al (current study)	R	217 RYGB, LSG, LAGB	6 (79%)	<6.0%	24% complete 26% partial

BPD indicates biliopancreatic diversion; DS, duodenal switch; NR, not reported; P, prospective; R, retrospective; VBG, vertical banded gastroplasty.



Short- and long-term diabetes remission and recurrence rates according to procedure type.



Long-Term Effects of Sleeve Gastrectomy and Roux-en-Y Gastric Bypass Surgery on Type 2 Diabetes Mellitus in Morbidly Obese Subjects

Amanda Jiménez, MD, Roser Casamitjana, PhD,*†‡ Lilliam Flores, MD, PhD,*†‡ Judith Viaplana, RN,‡ Ricard Corcelles, MD,* Antonio Lacy, MD, PhD,*‡ and Josep Vidal, MD, PhD*†‡*

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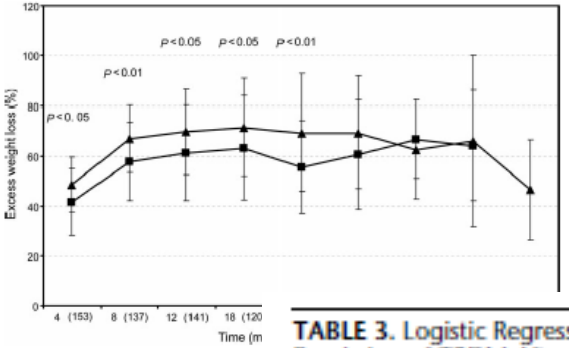


FIGURE 2. Time course of weight loss over a 5-year period in ± standard deviation. Circle indicates RYGBP; square, SG.

TABLE 3. Logistic Regression Analysis of Clinical Features Associated With Lack of Remission of T2DM After RYGBP or SG

	OR	95% CI	*P*	
Use of insulin before surgery (no use as reference)	18.268	3.850–86.621	0.001	←
Type of surgery (RYGBP as reference)	2.031	0.606–8.362	0.320	
Sex (female as reference)	2.251	0.502–8.213	0.228	
Age, yr	1.026	0.955–1.103	0.483	
HbA_{1c} before surgery, %	1.580	1.078–2.315	0.019	←
T2DM duration, yr	1.18	1.050–1.330	0.006	←
Body mass index before surgery, kg/m^2	0.876	0.764–1.005	0.058	
Excess weight loss at the last follow-up visit, %	0.929	0.893–0.967	0.001	←

CI indicates confidence interval; OR, odds ratio.

TABLE 4. Cox Regression Analysis of Clinical Features Associated With Long-Term Remission and Recurrence of T2DM After RYGBP or SG

	Long-Term Remission			Recurrence		
	HR	**95% CI**	***P***	**HR**	**95% CI**	***P***
Type of surgery (SG = 1/RYGBP = 0)	1.901	1.078–3.351	0.026	3.566	0.507–25.072	0.201
Sex(female = 1/male = 0)	0.835	0.525–1.328	0.446	0.850	0.112–6.485	0.876
Age, yr	0.975	0.952–0.999	0.041	1.100	1.000–1.209	0.05
Body mass index before surgery,kg/m^2	0.969	0.931–1.007	0.112	0.966	0.800–1.166	0.717
HbA_{1c} before surgery, %	0.870	0.759–0.997	0.044	0.916	0.589–1.609	0.916
T2DM duration, yr	0.972	0.912–1.037	0.387	0.837	0.631–1.111	0.218
Use of insulin before surgery (use = 1/not use = 0)	0.389	0.157–0.961	0.041	204.997	1.843–1655.137	0.005
Excess weight loss at last follow-up,%	1.024	1.014–1.035	<0.001	0.953	0.884–1.028	0.216
Weight regain after remission (yes = 1/no = 0)	—	—	—	55.236	5.321–2383.678	0.021

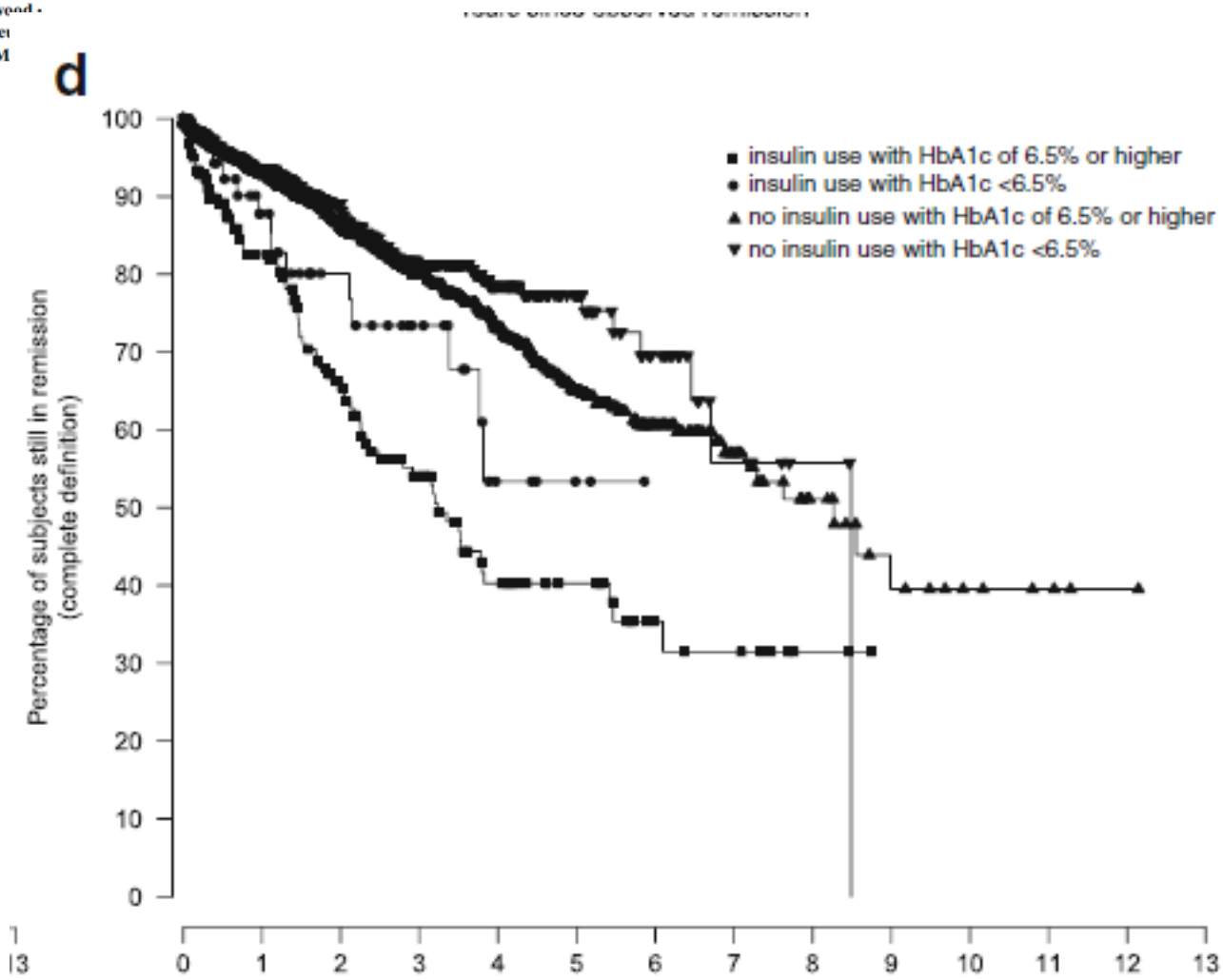
CI indicates confidence interval; HR, hazard ratio.

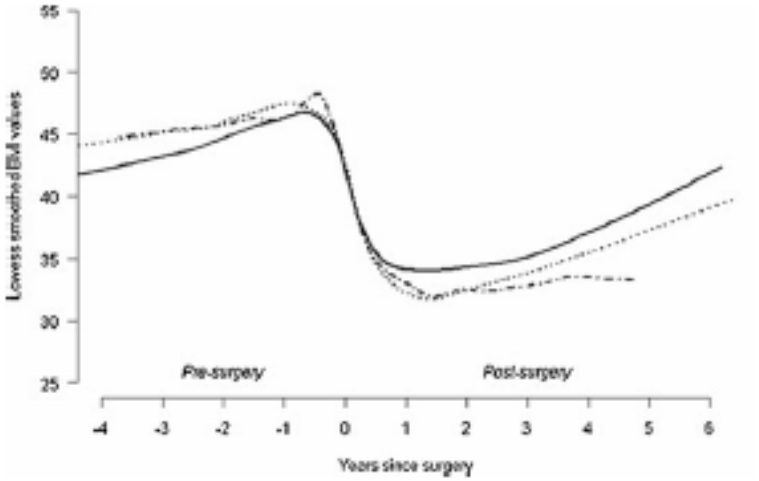
OBES SURG (2013) 23:93–102
DOI 10.1007/s11695-012-0802-1

CLINICAL RESEARCH

A Multisite Study of Long-term Remission and Relapse of Type 2 Diabetes Mellitus Following Gastric Bypass

David E. Arterburn · Andy Bogart · Nancy E. Sherwood · Stephen Sidney · Karen J. Coleman · Sebastien Hanet Patrick J. O'Connor · Mary Kay Theis · Guilherme M David McCulloch · Joe Selby





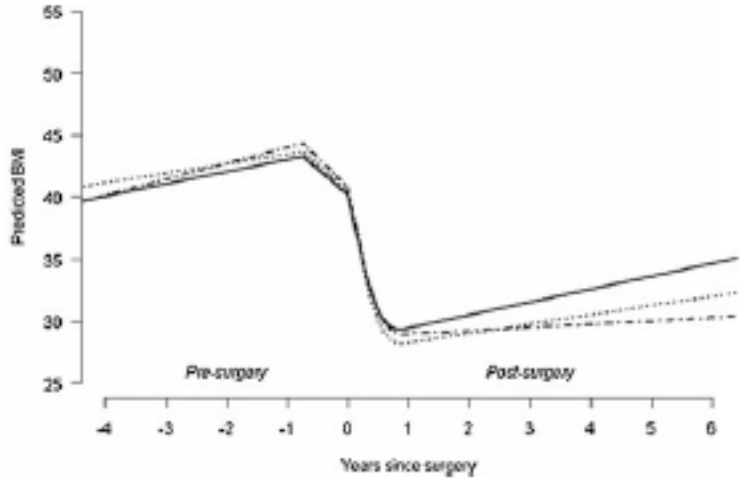


Fig. 4 Body mass index trajectories for gastric bypass patients who never completely remit diabetes, durably remit diabetes, and remit but subsequently relapse diabetes. The *left-hand figure* presents the unadjusted lowess smoothed BMI trajectories for each group, and the *right-hand figure* presents the multivariable adjusted and intensity-weighted plots for each group. Legend for the above plots: solid line = never remitted; dash-dot = remitted and relapsed; dotted line = durable remission

ABCD Arq Bras Cir Dig
2013;26(Suplemento 1):57-62

Review Article

METABOLIC SURGERY, WEIGHT REGAIN AND DIABETES RE-EMERGENCE

Cirurgia metabólica, reganho de peso e recidiva do diabete

Josemberg M. **CAMPOS**[1], Daniel C. **LINS**[1,2], Lyz B. **SILVA**[1],
José Guido C. **ARAUJO-JUNIOR**[1], Jorge L. M. **ZEVE**[3], Álvaro A. B. **FERRAZ**[1]

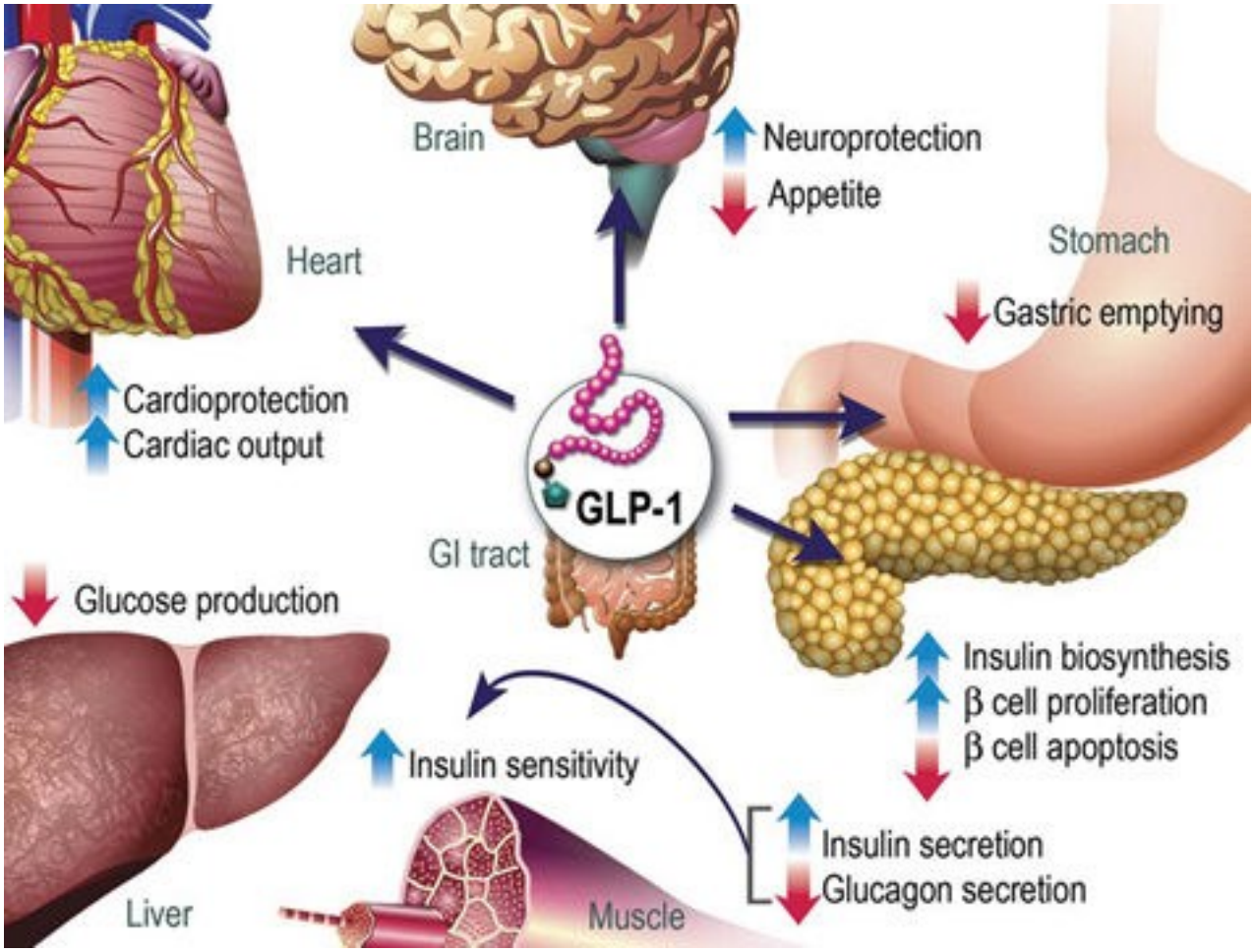
Author	n	Surgery	Follow-up	Pre-op BMI (mean ± SD)	Initial diabetes remission(%)	Weight regain (%)	Recurrence of diabetes after follow-up (%)	Adequate glycemic control after follow-up (%)
DiGiorgi	42	RYGB	≥ 3 years	51,4 ± 8,7	64%	21% of lost weight was regained	26%	-
Chikunguwo	177		5 – 16 years	50,2 ±8,1	88,7%	-	43,3%	-
Araujo	15		64,8 months	51,2 ± 6,4		100%	-	80%
	35 (control)			42,8 ± 5,4		0%	-	86,7%

		Group	
		Weight regain (n=15)	Control (n=30)
Variable	Evaluation time and differences	(mean ± SD)	(mean ± SD)
Age		45,47 ± 12.34	44.77 ± 11,80
BMI (kg/m²)	Pre	51.18 ± 6.39	42.86 ± 5.36
	Post 1	32.52 ± 1,62	25.30 ± 2.49
	Post 2	39.33 ± 5.49	26.90 ± 2,20
Follow-up	Post 1	17.60 ± 5.77	21.10 ± 10.99
	Post 2	64.80 ± 22.59	48.80 ± 13.35
		n (%)	n (%)
Controlled HbA1c	Post 2	12 (80.0)	26 (86.7)
Controlled glycemia	Pre	4 (26.7)	10 (33.3)
	Post 1	13 (86.7)	28 (93.3)
	Post 2	13 (86.7)	26 (86.7)
Complete remission of T2DM	Post 2	11 (73.3)	24 (80.0)
Complete + Partial Remission of T2DM	Post 2	11 (73.3)	25 (83.3)

T2DM=type 2 diabetes mellitus. Pre = Preoperative. Post = Postoperative

T2DM Rec Rs w/wo weight regain are similar (FU 65 mos)

Key issue: correct timing of T2DM dx


Brain
Neuroprotection
Appetite
Heart
Stomach
Gastric emptying
Cardioprotection
Cardiac output
GLP-1
GI tract
Glucose production
Insulin biosynthesis
β cell proliferation
β cell apoptosis
Insulin sensitivity
Insulin secretion
Glucagon secretion
Liver
Muscle

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DOI 10.1007/s11695-010-0329-2

CURRENT STATUS

Update: Why Diabetes Does Not Resolve in Some Patients after Bariatric Surgery

Mervyn Deitel

Table 1 Why diabetes does not resolve after bariatric surgery in some patients

Inadequate weight loss
Over-indulgence in high-caloric foods
Lack of compliance with diet and exercise
Longstanding poorly controlled or aggressive type 2 diabetes
Lower preoperative BMI
Surgical technique—pouch and/or stoma constructed too large, resulting in inadequate gastric restriction
Diabetes actually a type 1 (LADA)

Table 2 Latent autoimmune diabetes in the adult (LADA): a type 1

Onset ages 30–55 years
Slow autoimmune destruction of beta cells
9–25% of adult diabetic population
Low or absent plasma insulin
Very low fasting and meal-stimulated C-peptide
Antibodies to GAD, insulin and/or islet cells
Possible history of other autoimmune disease
May respond to oral anti-diabetes medications while 20% of beta cells are still functioning
Progresses to requiring insulin

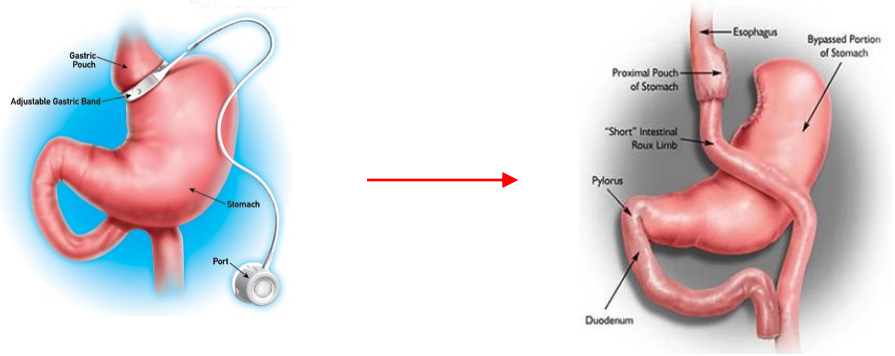
GAD glutamic acid decarboxylate

after multidisciplinary reassessment

possible surgical targets

- **Inadequate weight loss**

  CONVERSION switch operation



- Poor surgical technique

  REVISION pouch and stoma

grazie per l'attenzione!