

SHOULD REMISSION OF TYPE 2 DIABETES MELLITUS BE THE FOREMOST GOAL AFTER BARIATRIC SURGERY?

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INTRODUCTION

Remission of type 2 diabetes (T2D) is a yearned outcome after bariatric surgery (BS). Attention to individuals who do not strictly fulfill remission criteria has been frequently left behind. The aim of this

study was to evaluate metabolic control status in patients considered as diabetes “non-remitters”.

PATIENTS AND METHODS

Retrospective study of 125 patients (59.2% women) with preoperative diagnosis of T2D who underwent BS in a single center (2006-2011). Anthropometric and metabolic parameters, before surgery and at one-year follow-up.

Definition of T2D remission according to Buse et al: HbA1c<6%, fasting glucose (FG) <100 mg/dL, absence of pharmacologic treatment. Evaluation of metabolic status of non-remitters, according to ADA’s target recommendations of glucose and lipid control: HbA1c < 7%, LDL-c < 100 mg/dL, triglycerides < 150 mg/dL, HDL-c > 40 (male) or > 50 mg/dL (female). Statistics: analysis of variance.

RESULTS

Preoperatively (mean ± SD): age 53.5 ± 9.7 years, BMI 43.5 ± 5.6 kg/m², duration of T2D 7.7 ± 7.9 years, FG 162.0 ± 56.3 mg/dl, HbA1c 7.7 ± 1.6%, LDL-c 100.9 ± 29.1 mg/dL, HDL-c 48.6 ± 12.3 mg/dL, triglycerides (Tg) 195.7 ± 128.7 mg/dL. 43.2% had previous insulin treatment, 38.4% had HbA1c < 7% and only 9.6% (12 patients) fulfilled ADA’s target recommendations regarding optimal combined metabolic control.

At one year follow-up, 62 (49.6%) patients did not achieve diabetes remission as defined by Buse et al (**figure 1a**); rates were different according to previous hypoglycemic treatment (**figure 1b**). **Table 1** shows patients’ baseline and 12-months’ follow-up characteristics according to their T2D remission status. Hypoglycemic treatment according to remission status is shown in **table 2**.

Of the non-remitters, 91.9% had HbA1c <7% (**figure 2**) and 40.0% achieved ADA’s target recommendations (**figure 3**). There were no differences between remitters and non-remitters in the number of individuals reaching ADA’s target glucose and lipid levels.

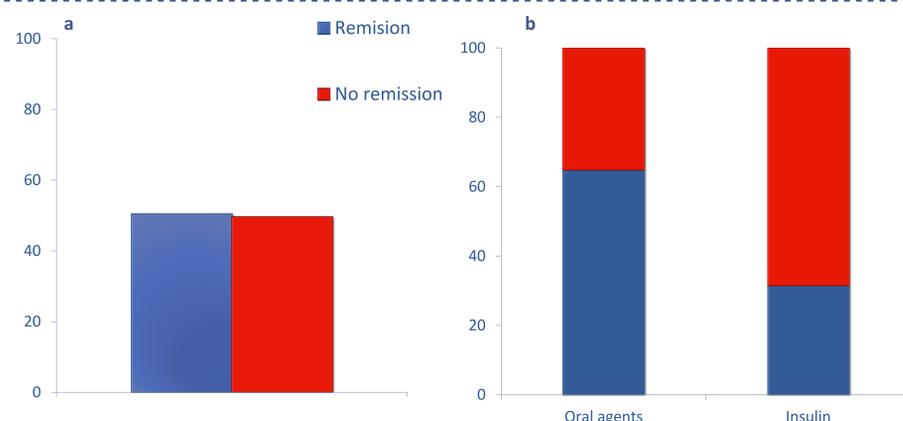


Figure 1. Percentage of individuals with remission and no remission of T2D, in total (a), and according to their previous hypoglycemic treatment [Chi-square analysis (Fisher’s exact test), p<0.001] (b).

Variable	Remission	No remission	p
N	63 (50.4)	62 (49.6)	
%WL	35.4 ± 8.2	30.2 ± 9.7	0.002
%EWL	73.6 ± 18.6	67.1 ± 23.4	0.085
Preop-FG (mg/dL)	150.4 ± 52.7	173.8 ± 57.7	0.019
12m-FG (mg/dL)	85.9 ± 7.6	114.2 ± 25.8	<0.001
Preop-HbA1c (%)	7.3 ± 1.2	8.0 ± 1.8	0.010
12m-HbA1c (%)	5.1 ± 0.6	6.0 ± 1.8	<0.001
Preop-LDL-c (mg/dL)	100.9 ± 33.4	103.5 ± 28.6	0.675
12m-LDL-c (mg/dL)	78.6 ± 35.4	84.2 ± 29.0	0.332
Preop-HDL-c (mg/dL)	47.3 ± 11.1	50.4 ± 11.4	0.155
12m-HDL-c(mg/dL)	51.0 ± 12.3	50.5 ± 14.2	0.839
Preop-Tg (mg/dL)	197.7 ± 140.8	193.7 ± 115.8	0.900
12m-Tg(mg/dL)	97.3 ± 35.2	131.0 ± 64.2	<0.001
T2D duration (years)	4.9 ± 4.0	10.7 ± 9.7	<0.001
Previous insulin treatment	17 (27.0)	37 (59.7)	<0.001

Table 1.

	Remission		No remission	
	Preop	12-m	Preop	12-m
No / Diet	0	0	0	41.9
Oral agents	73.0	0	40.3	48.4
Insulin	27.0	0	59.7	9.7

Table 2. Preoperative (“preop”) and 12-month (12m) follow-up hypoglycemic treatment, according to remission status. Percentage of patients.

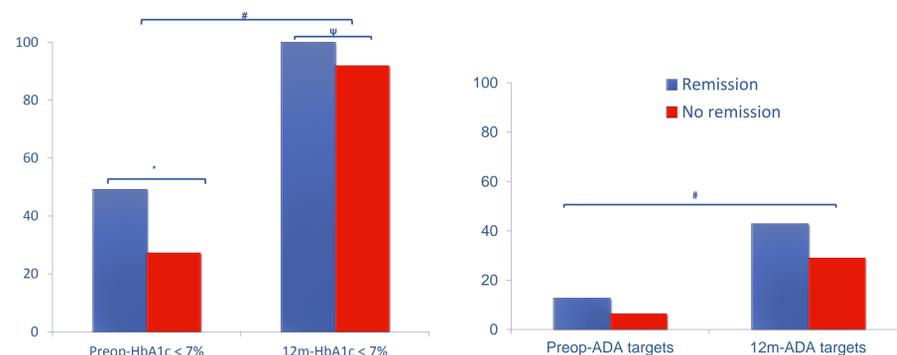


Figure 2. Percentages of patients with HbA1c < 7%, preoperatively and at 12-months’ follow-up, according to remission status. *T-test for paired samples (p<0.001); *Chi square analysis (p=0.005); *Chi square analysis (p=0.028).

Figure 3. Percentages of patients with ADA’s target recommendations of combined metabolic control (HbA1c < 7%, LDLc < 100 mg/dL, triglycerides < 150 mg/dL and HDLc > 40 (male) or > 50 (female) mg/dL), preoperatively and at 12-month follow-up, according to remission status. * T-test for paired samples (p<0.001).

CONCLUSIONS

Although almost 50% of patients may not be classified as diabetes remitters according to a strict criteria, they achieve a significant improvement in glucose and lipid control, which should be considered a success according to most scientific societies’ target recommendations.