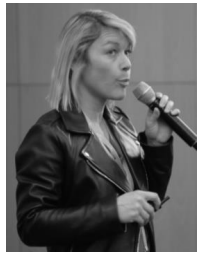
5-year outcomes of OAGB: the YOMEGA randomized trial

Prof Francois Pattou

University Hospital of Lille, France

Multicenter randomized trials in France

Maud Robert et al.
Lancet 2019



Yomega : OAGB 200 cm vs RYGB ; PI Maud Robert, Lyon

Efficacy and safety of one anastomosis gastric bypass versus Roux-en-Y gastric bypass for obesity (YOMEGA): a multicentre, randomised, open-label, non-inferiority trial

Claire Blanchard

Endometab : Duodenojejunal liner vs standard care

Efficacy and Safety of the Duodeno-Jejunal Bypass Liner in Patients With Metabolic Syndrome

A Multicenter Randomized Controlled Trial (ENDOMETAB)

Tigran Poghossian

Robert Caiazzo et al.
Ann Surg 2020

SadiSleeve : SADI vs RYGB ; PI Maud Robert , Lyon

Bipass : Transit Bipartition vs RYGB; PI Robert Caiazzo , Lille

Yomega 2 : OAGB 150 cm vs RYGB ; PI Tigran Poghossian, Paris

NashSurg : MBS vs standard care; PI Philippe Mathurin, Lille

Andrea Lazzati

Maud Robert

Efficacy and safety of one anastomosis gastric bypass versus Roux-en-Y gastric bypass for obesity (YOMEGA): a multicentre, randomised, open-label, non-inferiority trial

Maud Robert, Philippe Espalieu, Elise Pelascini, Robert Caiazzo, Adrien Sterkers, Lita Khamphommala, Tigran Poghosyan, Jean-Marc Chevallier, Vincent Malherbe, Elie Chouillard, Fabian Reche, Adriana Torcivia, Delphine Maucort-Boulch, Sylvie Bin-Dorel, Carole Langlois-Jacques, Dominique Delaunay, François Pattou, Emmanuel Disse

Lancet Diabetes Endocrinol 2019

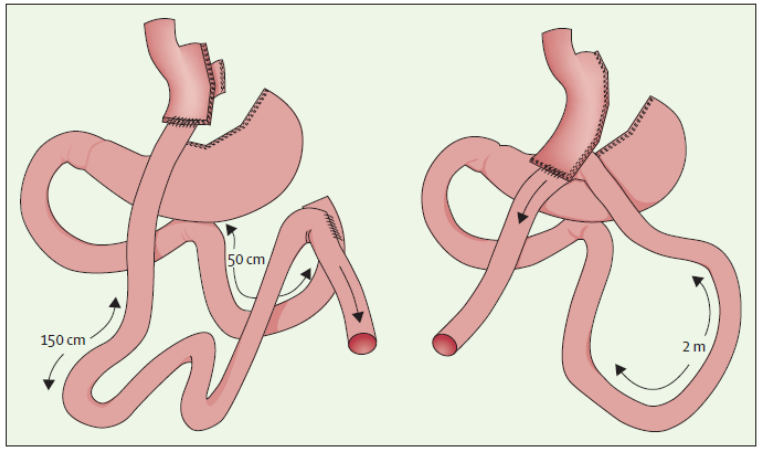
Reasons of an ongoing controversy

- Better weight loss and metabolic effect ?
- Low level of evidence in litterature
- Exposure to bile reflux
- Lack of long term follow-up
- Malabsorption and nutritional risk

Fisher B et al Obes Surg. 2001, McCarthy TG et al Adv Contracept Deliv Syst 1985, Viste A et al Lancet 1986, K. Mahawar et al. Obes Surg 2017, Betry et al JPEN 2016 , Disse et al Obes Surg 2013

YOMEGA study population

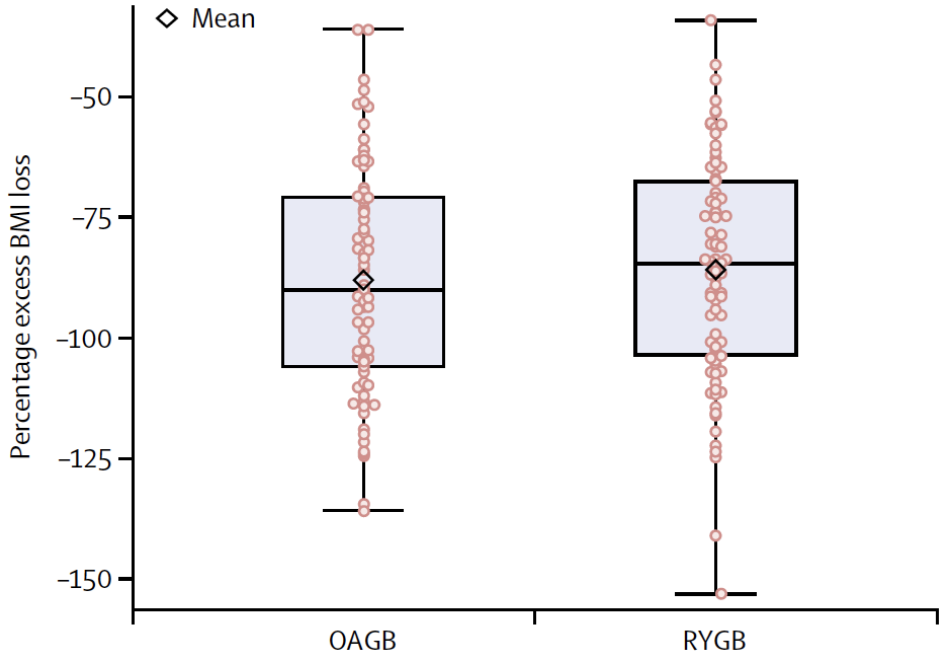
Multicenter randomized controlled trial



	Per-protocol population (n=234)	RYGB group (n=117)	OAGB group (n=117)
Age, years	43·5 (10·8)	42·6 (10·2)	44·4 (11·4)
n (missing data)	234 (0)	117 (0)	117 (0)
Sex			
Male	58 (25%)	26 (22%)	32 (27%)
Female	176 (75%)	91 (78%)	85 (73%)
n (missing data)	234 (0)	117 (0)	117 (0)
Weight, kg	120·5 (21·7)	119·91 (18·7)	121·2 (24·4)
n (missing data)	234 (0)	117 (0)	117 (0)
BMI, kg/m²	43·9 (5·6)	43·9 (5·1)	43·8 (6·1)
n (missing data)	234 (0)	117 (0)	117 (0)
BMI ≥50 kg/m²	29 (12%)	14 (12%)	15 (13%)
n (missing data)	234 (0)	117 (0)	117 (0)
Type 2 diabetes	58 (27%)	30 (29%)	28 (26%)

Robert et al. *Lancet 2019*

At 2 years : no significant difference in weight loss



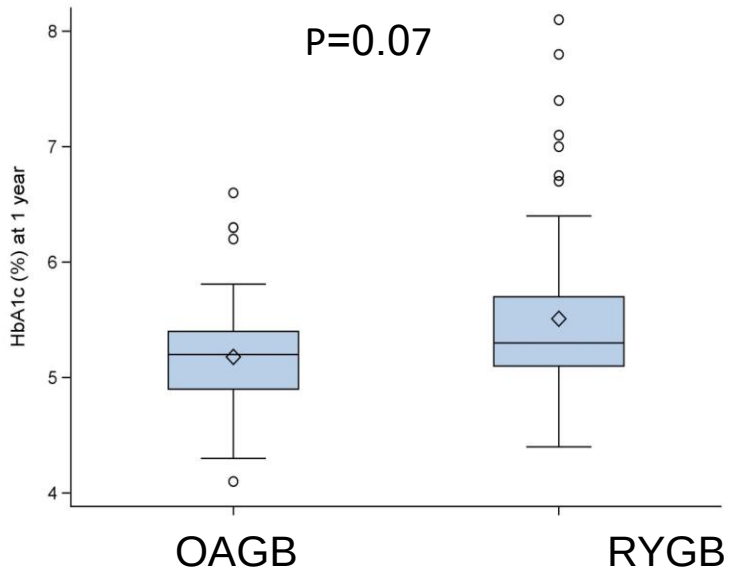
% total weight loss	37.1 (10.3)	35.4 (8.1)

Robert et al. *Lancet 2019*

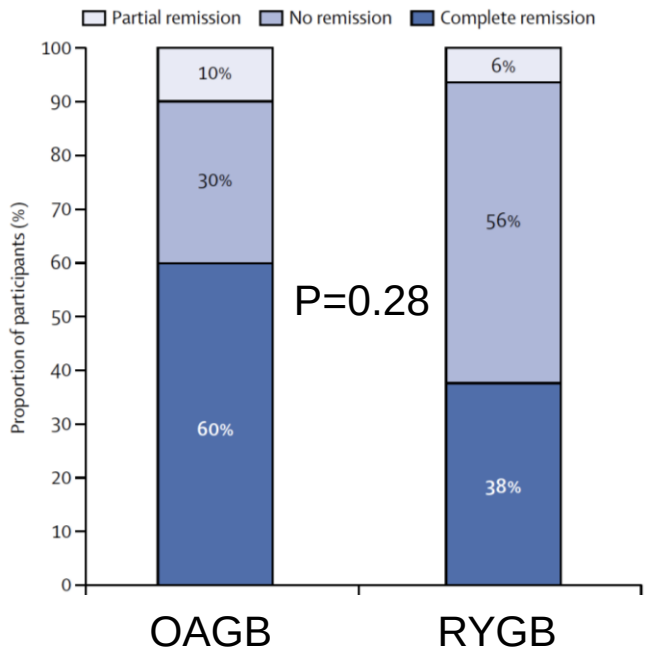
At 2 years : slightly better glucose control with OAGB

Glucose control - HbA1c %

5.2(0.6) 5.5(0.7)



Diabetes remission

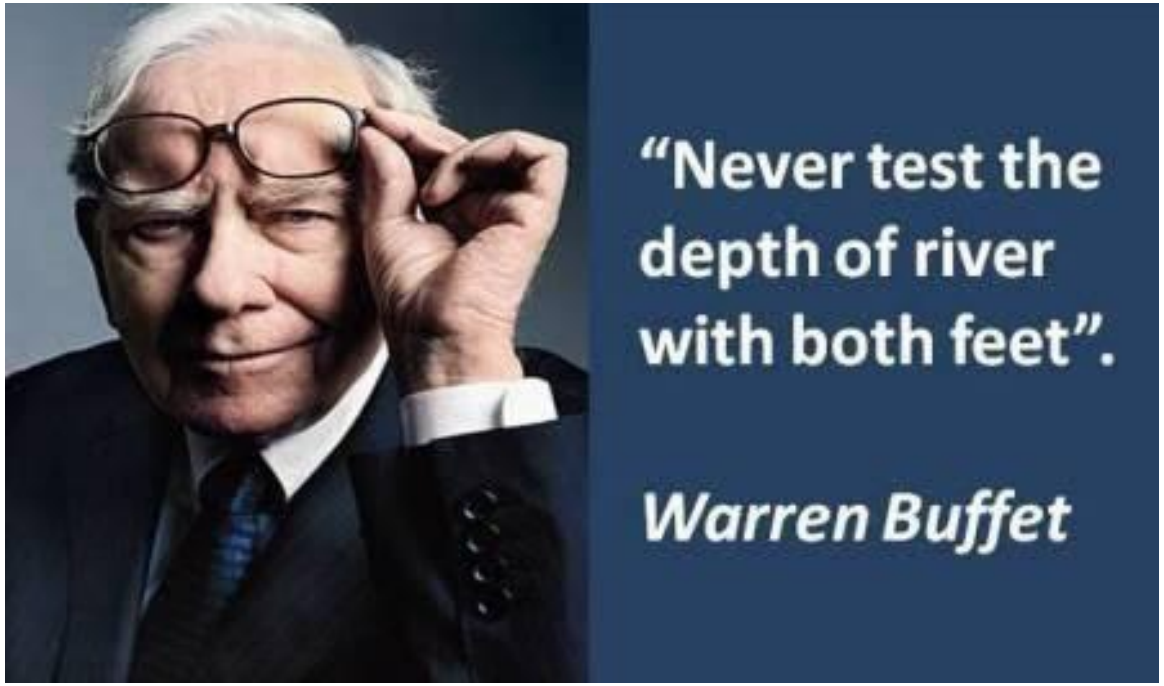


At 2 years : more nutritional complications with OAGB

	Type of nutritional complication	Mean weight loss (kg)	Vitamin deficiency	Malnutrition	Anaemia or iron deficiency	Steatorrhoea >7 g per 24 h
Participant 1	Wernicke encephalopathy	64; converted to RYGB	Yes	Yes	No	25
Participant 2	Malnutrition	52	Yes	No	No	9·74
Participant 3	Malnutrition	Data missing; converted to RYGB	Yes	No	No	Data missing
Participant 4	Severe diarrhoea or malnutrition	39	Yes	Yes	No	Data missing
Participant 5	Malnutrition or anorexia	40	Yes	Yes	Yes	14
Participant 6	Feeding difficulties	53	Yes	Yes	Yes	Data missing
Participant 7	Anorexia	126	Yes	Yes	Yes	Data missing
Participant 8	Food intolerance	38	Yes	Yes	Yes	10
Participant 9	Anaemia	55	Yes	Yes	Yes	Data missing

OAGB=one anastomosis gastric bypass. RYGBP=Roux-en-Y gastric bypass.

Table 6: **Nutritional complications among nine participants in the OAGB group**


"Never test the depth of river with both feet".
Warren Buffet

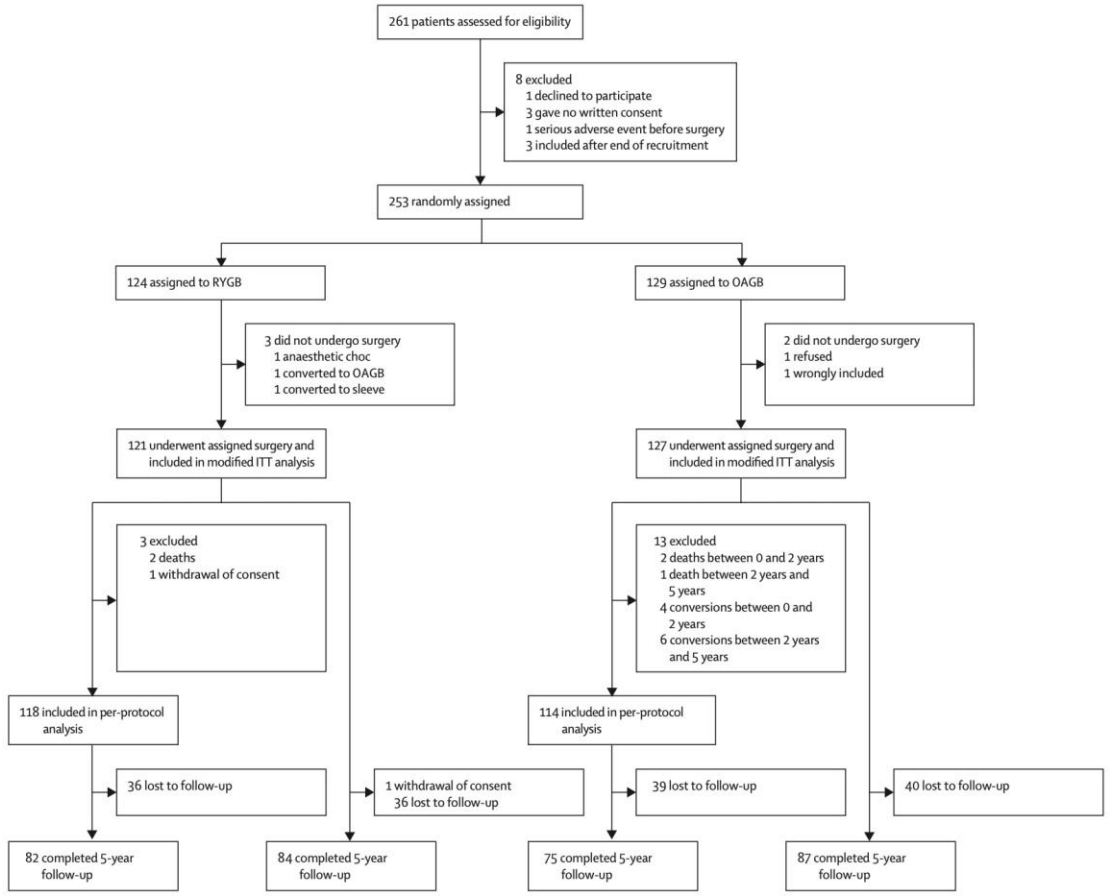
Efficacy and safety of one anastomosis gastric bypass versus Roux-en-Y gastric bypass at 5 years (YOMEGA): a post-hoc analysis of a prospective, open-label, non-inferiority, randomised trial

Maud Robert, Tigran Poghosyan, Delphine Maucort-Boulch, Alexandre Filippello, Robert Caiazzo, Adrien Sterkers, Lita Khamphommala, Fabian Reche, Vincent Malherbe, Adriana Torcivia, Toufic Saber, Dominique Delaunay, Carole Langlois-Jacques, Augustin Suffisseau, Sylvie Bin, Emmanuel Disse, François Pattou

Lancet Diabetes Endocrinol 2024

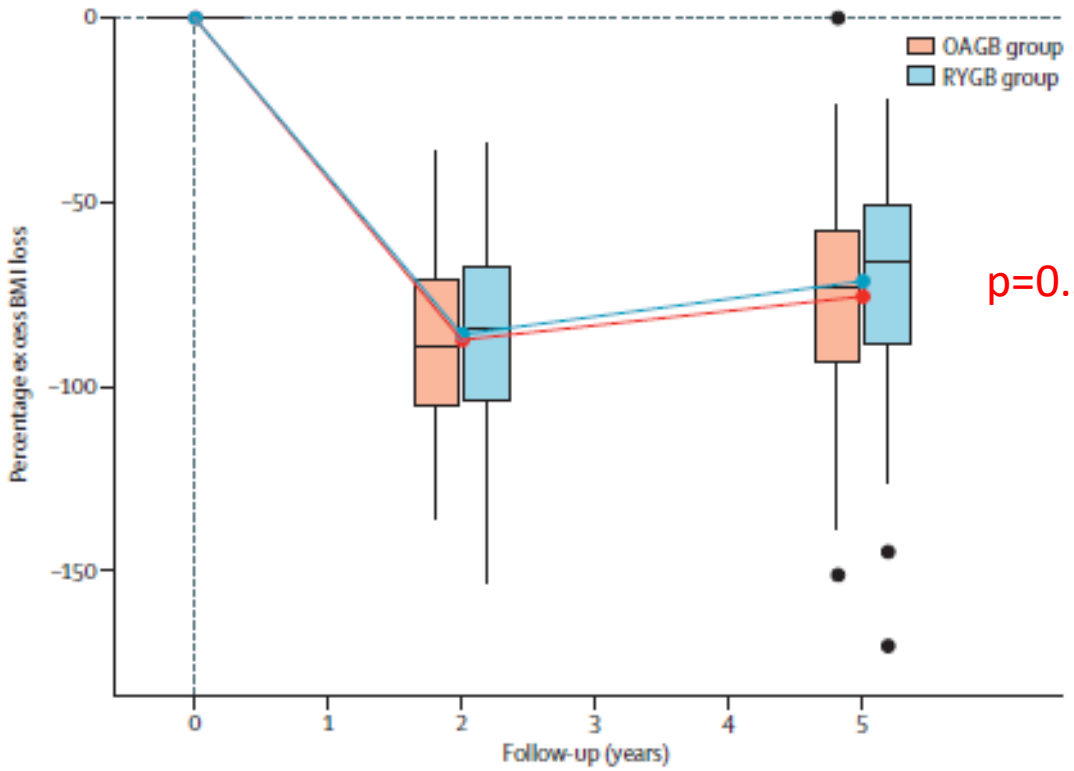
5-year study population

	Per-protocol population (n=232)	RYGB group (n=118)	OAGB group (n=114)
Age, years	43·0 (10·8)	42·2 (10·3)	43·8 (11·3)
Sex			
Male	54 (23%)	25 (21%)	29 (25%)
Females	178 (77%)	93 (79%)	85 (75%)
Weight, kg	120·8 (21·5)	120·1 (18·6)	121·4 (24·2)
BMI, kg/m²	44·0 (5·6)	44·0 (5·1)	44·0 (6·1)
BMI ≥50 kg/m²	28 (12%)	13 (11%)	15 (13%)
HbA_{1c}			
%	6·0% (1·3)	6·0% (1·3)	6·0% (1·2)
mmol/mol	42 (14)	42 (14)	42 (14)
Missing	19 (8%)	9 (8%)	10 (9%)



32.3% lost to follow up / 5 years

Weight loss - EBL% - at 5 years (per protocol population)

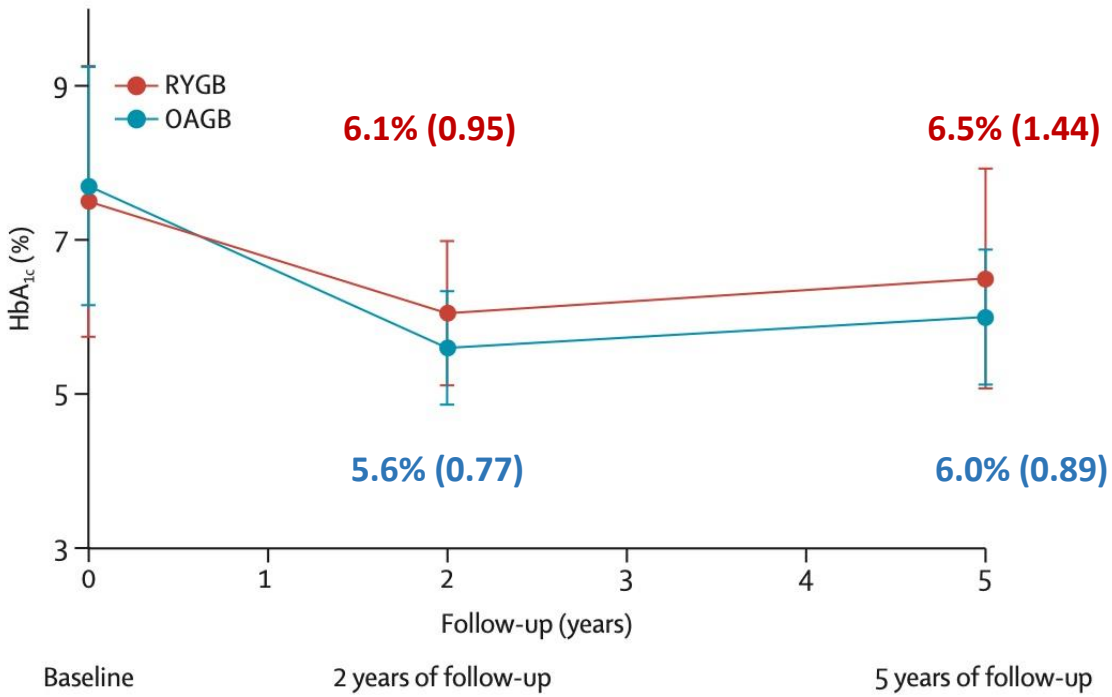


p=0.38

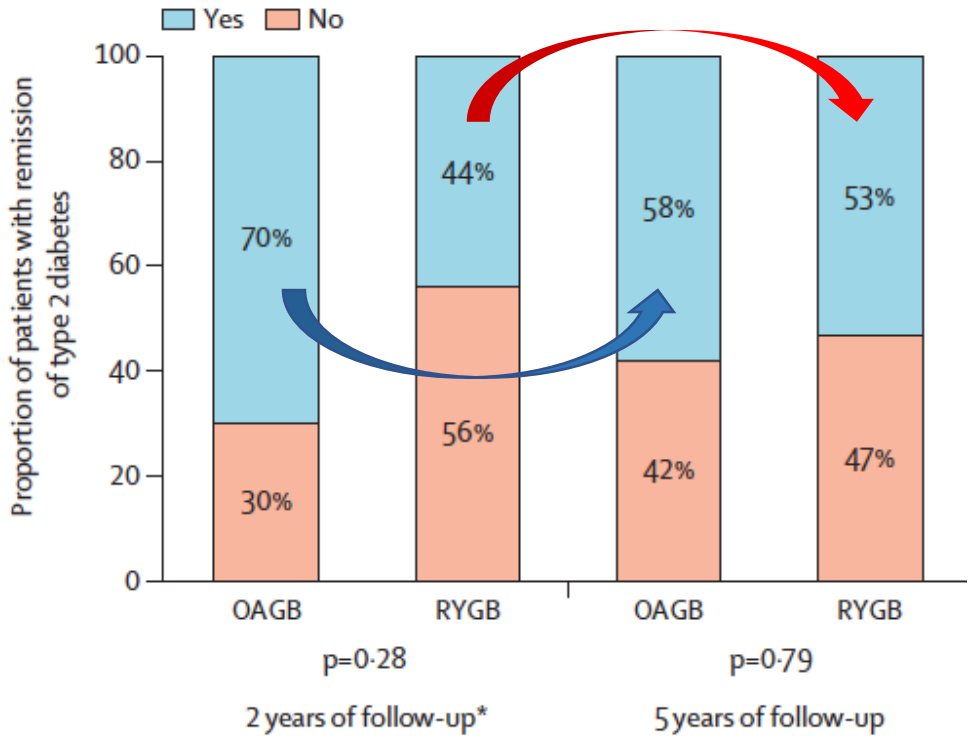
	2 years of follow-up	5 years of follow-up
OAGB group	Mean −87·4% (SD 23·9); n=71	Mean −75·6% (SD 28·1); n=72
RYGB group	Mean −85·8% (SD 23·3); n=85	Mean −71·4% (SD 29·8); n=78

p non-inferiority = 0.01

Diabetes remission at 5 years (per protocol population)



HbA_{1c}

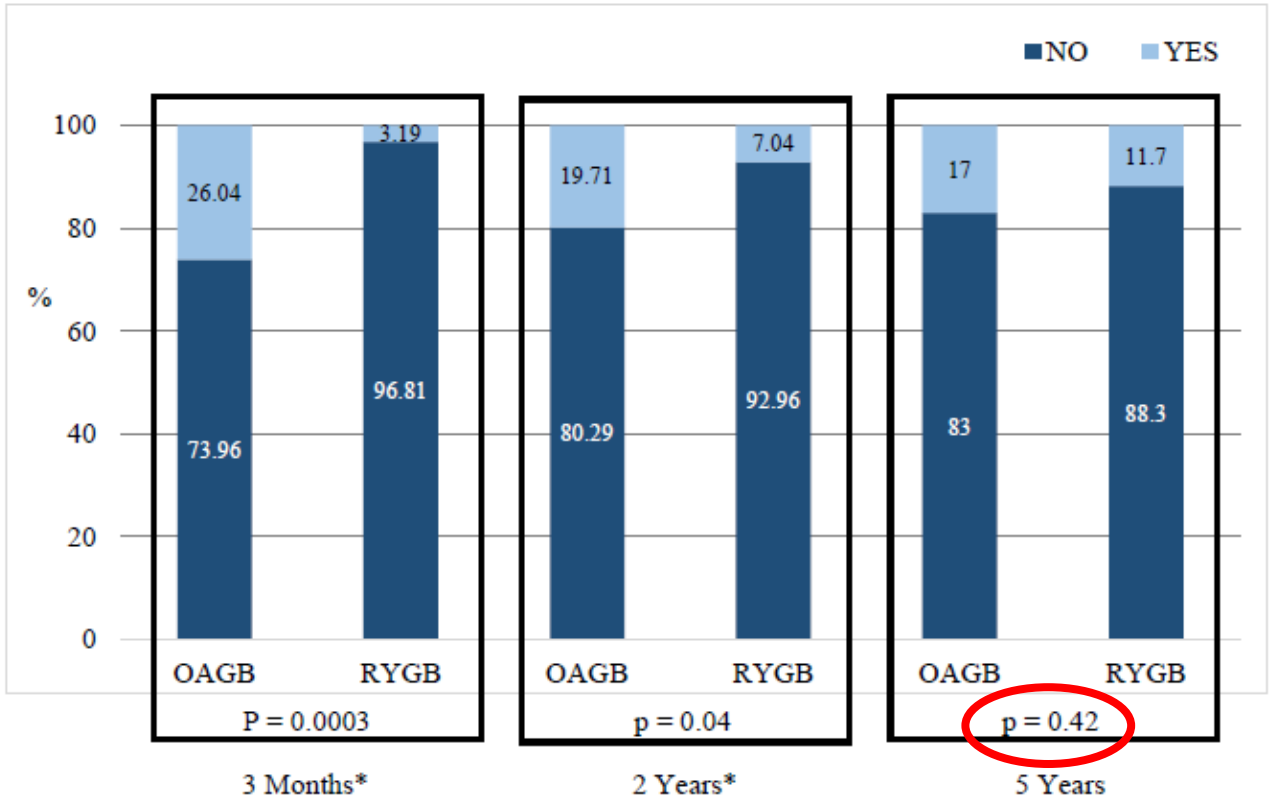


Diabetes remission

Other comorbidities at 5 years (per protocol population)

Remission of comorbidities	OAGB n=114	RYGB n=118	p
Arterial hypertension	10/21 (48%)	9/23 (39%)	0.57
Dyslipidemia	5/11 (45%)	8/13 (62%)	0.43
Obstructive Sleep Apnea	34/35 (97%)	37/40 (93%)	0.37

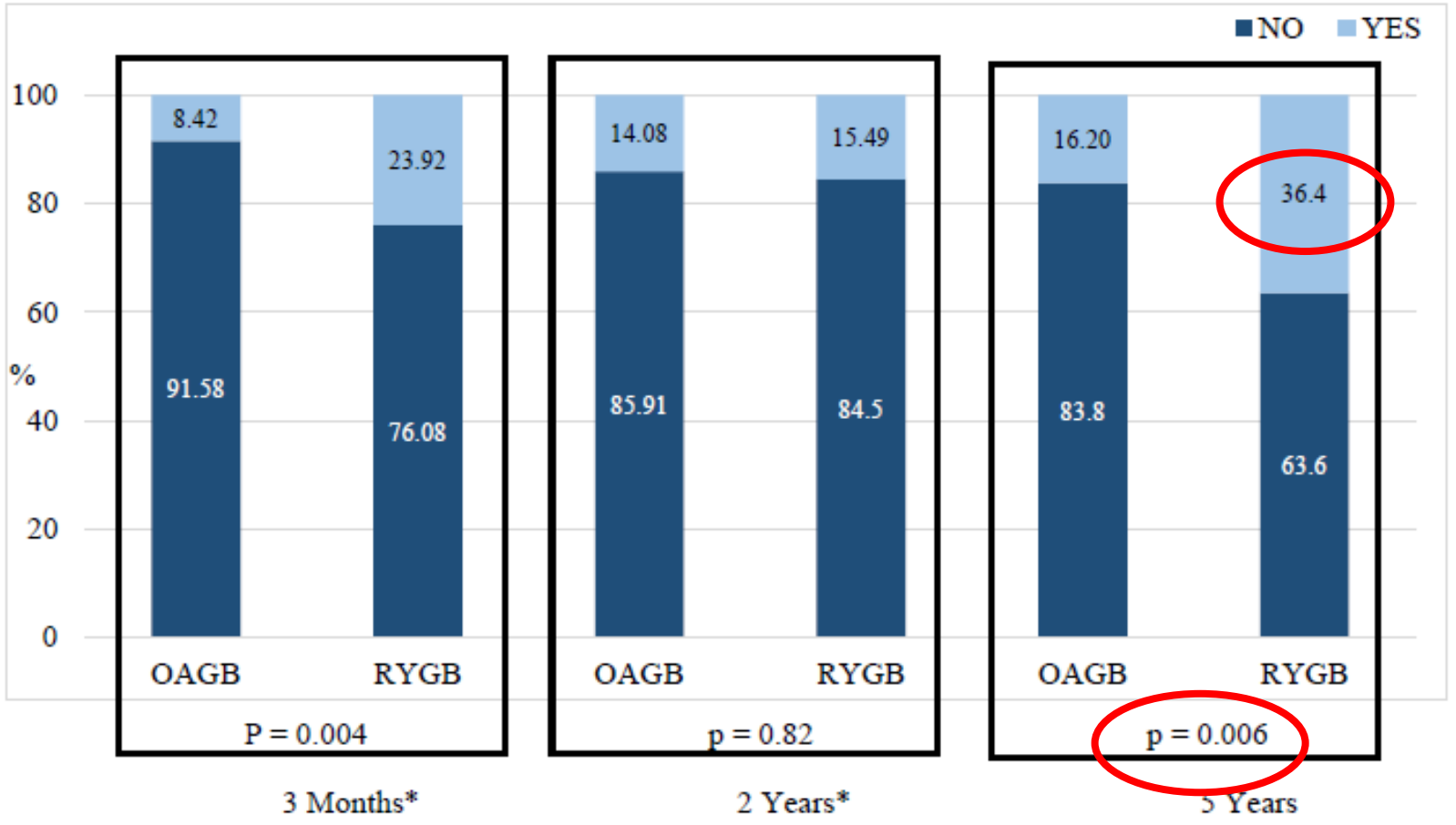
Diarrhea at 5 years (per protocol population)



* Data published at 2 years [9]

≥ 4 stools/ day at 5 years

Early dumping syndrome at 5 years (per protocol population)



* Data published at 2 years [9]

Clinical GERD at 5 years (per protocol population)

	OAGB (n=114)		RYGB (n=118)	p
Clinical GERD* at 2 years	5.6%		1.4%	0.15
Cinical GERD* at 5 years	40.9%	x 2	18.4%	0.03
Use of PPI ≥ 20 mg/ day at 5 years	42%		24.7%	0.026

* regurgitations, heartburn, positional syndrome, nocturnal cough and the use and dose of proton pump inhibitors in mg

Serious adverse events related to surgery at 5 years

Choisir l'affichage de la barre latérale

	Modified intention-to-treat population (n=248)	RYGB group (n=121)	OAGB group (n=127)	p value
Serious adverse event related to the technique				
Between baseline and 2 years*	66	24	42	0·04
Nutritional complications	9	0	9	0·0034
Between 2 years and 5 years	45	22	23	0·70
Nutritional complications	0	0	2	..
Iron infusion		9/76 (12%)	11/71 (16%)	**0.52**
Surgical complications between 2 years and 5 years				
Number of patients	44/155 (28%)	20/78 (26%)	24/77 (31%)	0·45
Acute anastomotic ulcer	2	0	2	..
Chronic anastomotic ulcer	1	0	1	..
Internal hernia	2	2	0	..
Cholecystectomy	14	8	6	..
Incisional hernia	6	1	5	..
Weight regain	1	1	0	..
Conversion to RYGB	6	0	6	..
Others	19	10	9	..
Total surgical complications	51	22†	29‡	..

Conversion from OAGB to RYGB

time of conversion	Patient	Reason for conversion					Comments
		GERD	Ulcer +/- Esophagitis	Vitamin deficiencies	Diarrhea	Anastomotic Leak	
0-2 years	02-016					+	
	04-031			+			Wernicke encephalopathy
	07-002	+	+				
	08-003	+		+	+		
2-5 years	02-009	+	+				
	02-018	+					
	04-005			+			
	04-006		+				
	04-042	+		+	+		
	09-005	+	+				

8% at 5 years

Redo surgery in France (SOFFCO-MM registry)

Previous surgery

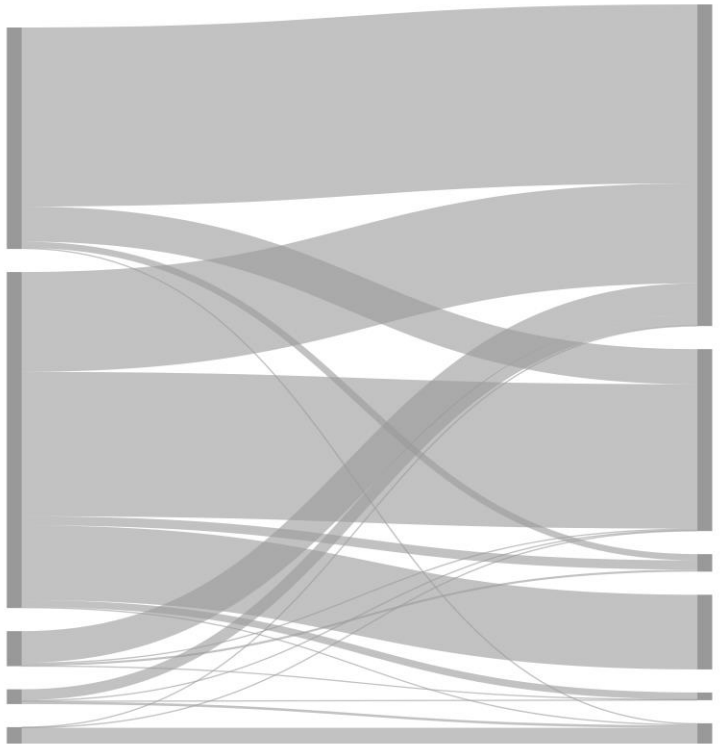
Sleeve 36,0%

Band 53,4%

OAGB 5,6%

RYGB 2,3%

Others 2,7%



Redo surgery

RYGB 51,6%

Sleeve 29,2%

OAGB 2,8%

Band ablation 12,0%

Band 1,2%

Others 3,3%

Taking home message from 5-year YOMEGA