HAUTE-NORMANDIE
CENTRE SPÉCIALISÉ DE L'OBÉSITÉ

RÉSULTATS À LONG TERME DE LA CHIRURGIE BARIATRIQUE

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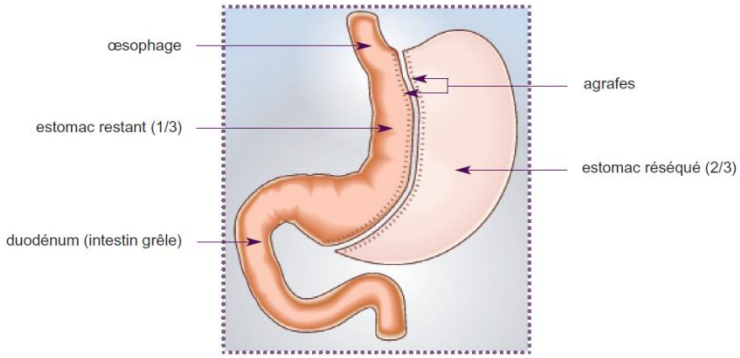
CHU ROUEN NORMANDIE

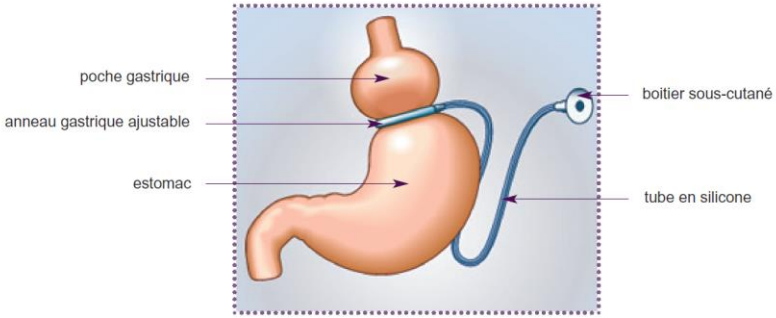
Les Procédures

Restrictives

Sleeve Gastrectomie

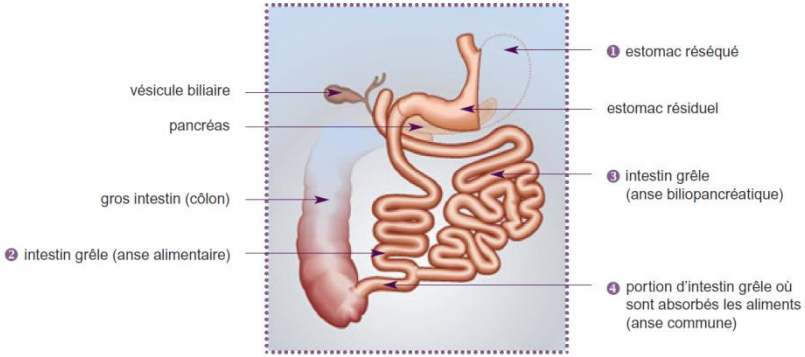


Anneau Gastrique ajustable

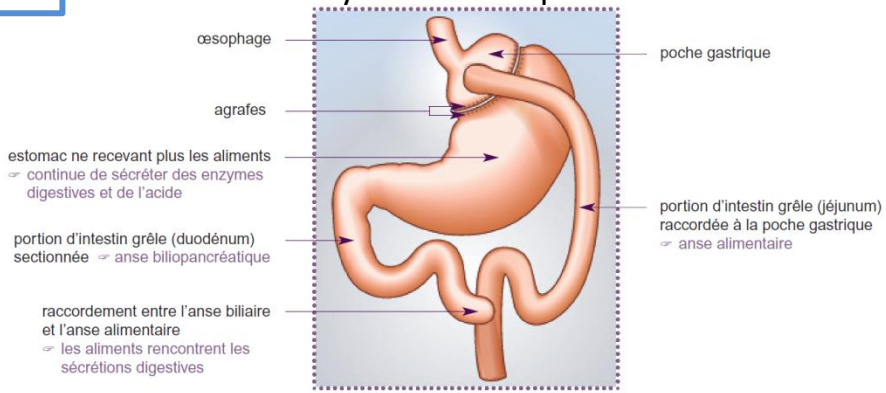


Malabsorptives

Derivation bilio-pancreatique



By Pass Gastrique



RÉSULTATS ?

- **Comparativement au ttt médical ? Entre les différentes techniques chirurgicales ?**

- **Quelle efficacité ?**
  - Perte de poids
  - Correction des co-morbidités (HTA, Diabète, SAOS…)
  - Effet indésirables et complications de la chirurgie

    → Quels critères d'évaluation ?

- **Importance du suivi documenté**
  - Qualité des études
  - Durée de suivi

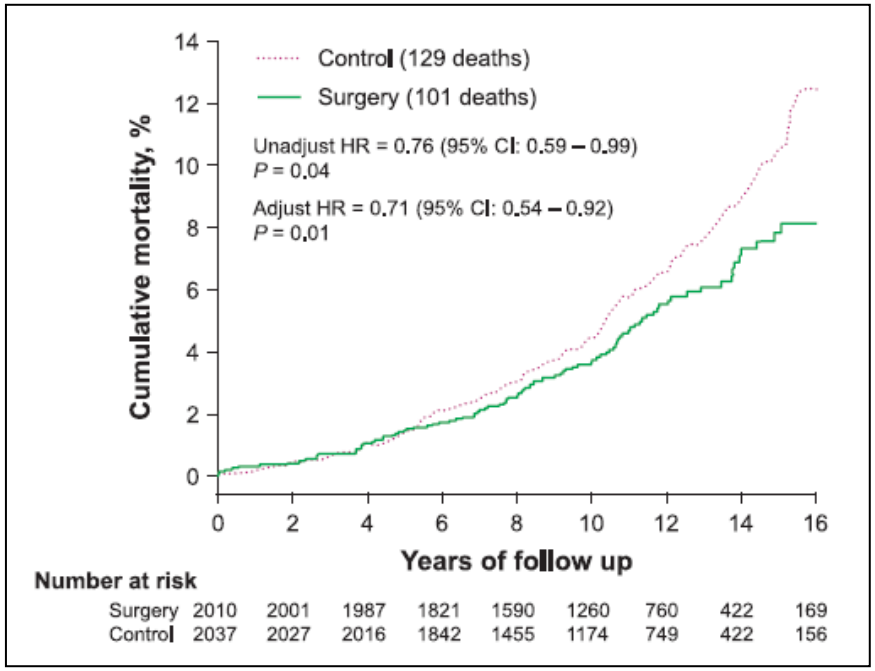
Table 1 Characteristics of the included studies

Study	No of patients	LRYGB (female/male)	LSG (female/male)	Follow-up (months)	Study type	Country	Publication year
Cutolo et al. [9]	31	16 (7/9)	15 (7/8)	24	Obs	Italy	2012
Iannelli et al. [10]	22	12 (9/3)	10 (8/2)	12	CCT	France	2011
Boza et al. [11]	1597	786 (602/184)	811 (618/193)	36	Obs	Chile	2012
Benaiges et al. [12]	140	95 (84/11)	45 (35/10)	12	Cohort	Spain	2011
Abbatini et al. [13]	36	16 (13/3)	20 (12/8)	36	Obs	Italy	2010
Kehagias et al. [14]	60	30 (22/8)	30 (22/8)	36	RCT	Greece	2011
Kasama et al. [15]	125	102 (78/24)	23 (6/17)	18	Obs	Japan	2008
Vidal et al. [16]	249	135 (117/18)	114 (84/30)	48	Obs	Spain	2013
Paluszkiewicz et al. [17]	72	36 (23/13)	36 (26/10)	12	RCT	Poland	2012
Zhang et al. [18]	558	358 (283/75)	200 (142/58)	12	Obs	USA	2012
Lakdawala et al. [19]	100	50 (27/23)	50 (26/24)	12	Obs	India	2010
Chouillard et al. [20]	400	200 (154/46)	200 (153/47)	36	CCT	France	2011
Leyba et al. [21]	117	75 (60/15)	42 (35/7)	12	Obs	Venezuela	2011
Yaghoubian et al. [22]	537	345	192	12	Obs	USA	2012
Mohos et al. [23]	94	47 (35/12)	47 (35/12)	12	Obs	Austria	2011
Nocca et al. [24]	68	35 (28/7)	33 (21/12)	12	Obs	France	2011
Benedix et al. [25]	29	12 (8/4)	17 (10/7)	12	Obs	Germany	2011
Robert et al. [26]	35	26 (19/7)	9 (6/3)	12	Obs	France	2013
Nelson et al. [27]	88	48	40	12	Obs	USA	2012
Jiménez et al. [28]	153	98 (67/31)	55 (28/27)	36	Obs	Spain	2012
Karamanakos et al. [29]	32	16 (12/4)	16 (15/1)	12	RCT	Greece	2008
Lim et al. [30]	485	237 (219/18)	248 (224/24)	60	Obs	USA	2012
Vix et al. [31]	100	45 (39/6)	55 (43/12)	12	RCT	France	2012
Li et al. [32]	749	670	79	42	Obs	USA	2009
de Gordejuela et al. [33]	90	60	30	24	Obs	Spain	2011
Strain et al. [34]	131	101 (75/26)	30 (21/9)	12	Obs	USA	2009
Ramón et al. [35]	15	7 (7/0)	8 (8/0)	12	RCT	Spain	2012
Gehrer et al. [36]	136	86 (61/25)	50 (37/13)	36	Obs	Switzerland	2010
Overs et al. [37]	103	41 (21/20)	62 (48/14)	48	Obs	Australia	2012
Ruz et al. [38]	43	23	20	12	Obs	Chile	2012
Woelnerhanssen et al. [39]	23	12	11	12	RCT	Switzerland	2011
Benaiges et al. [40]	102	51 (42/9)	51 (42/9)	12	Cohort	Spain	2012
Romero et al. [41]	12	6 (4/2)	6 (3/3)	1.5	CCT	Spain	2012
Topart et al. [42]	448	360 (296/64)	88 (55/33)	3	Obs	France	2012
Bayham et al. [43]	109	38	71	2	Obs	USA	2012
Martín et al. [44]	115	69	46	3	Obs	Spain	2012
Peterli et al. [45]	217	110 (79/31)	107 (77/30)	12	RCT	Switzerland	2013
Keidar et al. [46]	37	19	18	12	RCT	Israel	2013
Zhang et al. [47]	64	32 (20/12)	32 (18/14)	60	RCT	China	2014
Helmiöet al. [48]	230	111	119	6	RCT	Finland	2013
Vix et al. [49]	100	45 (39/6)	55 (43/12)	12	RCT	France	2014
Leyba et al. [50]	117	75 (60/15)	42 (35/7)	60	CCT	Venezuela	2014
Moore et al. [51]	23	11 (11/0)	12 (12/0)	3	CCT	USA	2014
Chaar et al. [52]	885	547 (432/115)	338 (266/72)	24	Obs	USA	2014
Dogan et al. [53]	490	245 (201/44)	245 (201/44)	60	Obs	Netherlands	2014
Lee et al. [54]	18	12	6	12	CCT	Taiwan	2013
Bonner et al. [55]	157	126 (111/15)	31 (24/7)	12	Obs	USA	2014
Alexandrou et al. [56]	95	55 (40/15)	40 (36/4)	48	Cohort	Greece	2014

Jianfang Li, Obes Surg 2016

TTT MÉDICAL +/- CHIRURGIE

- **N= 4047 suivi prospectif de 12-25 ans**
  - Med = 2010
  - Chir = 2037
- **Baisse de 30 % mortalité**

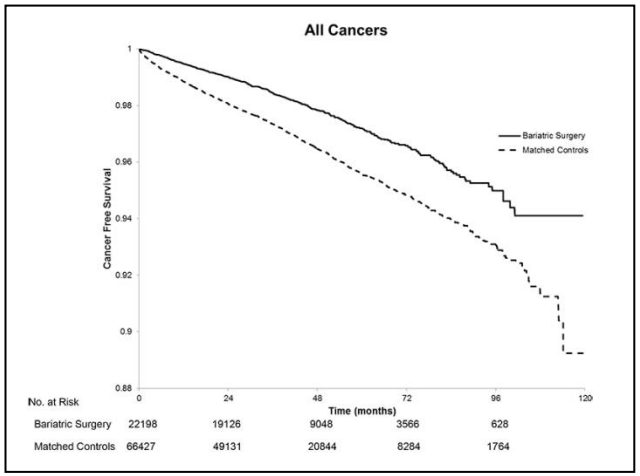


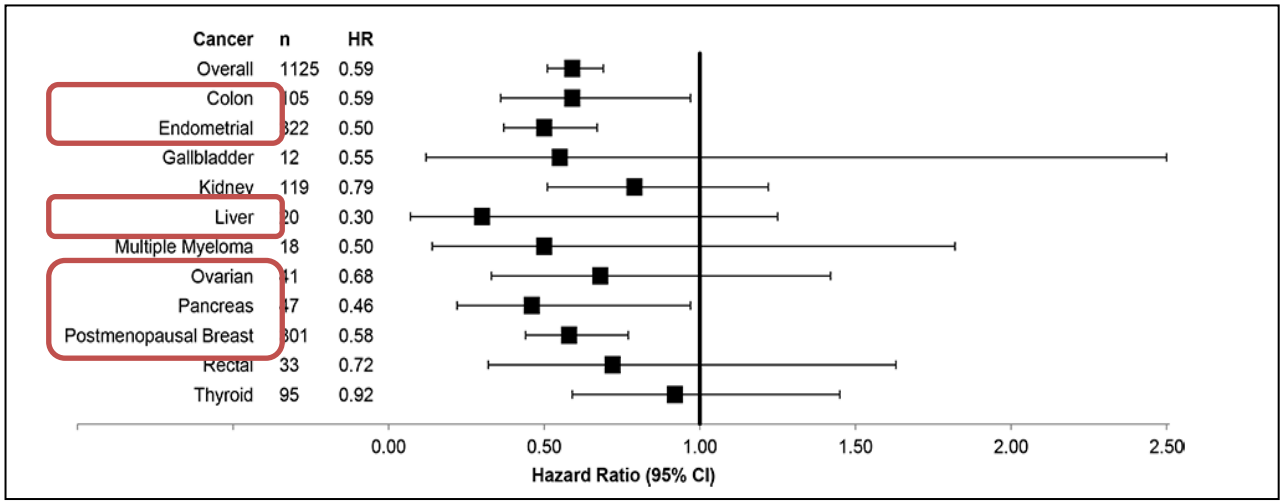
Sjöstrom, NEJM 2007

CANCER

- **Etude rétrospective suivi 10 ans**
  - 22 000 opéré
  - 60 000 non opérés

- **Diminution significative du nb de cancer**
- **Cancer associé à l'obésité**

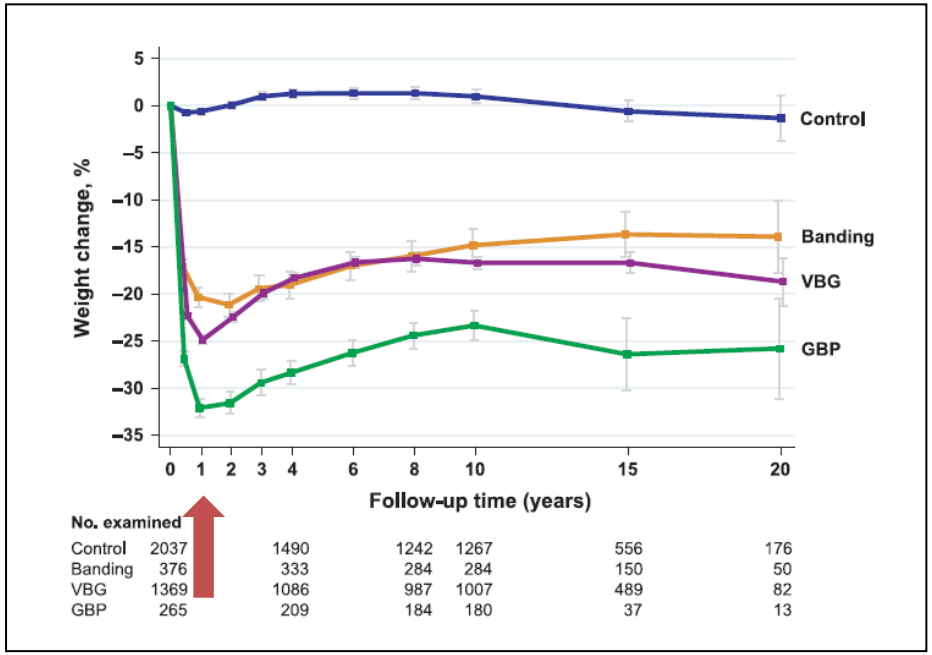


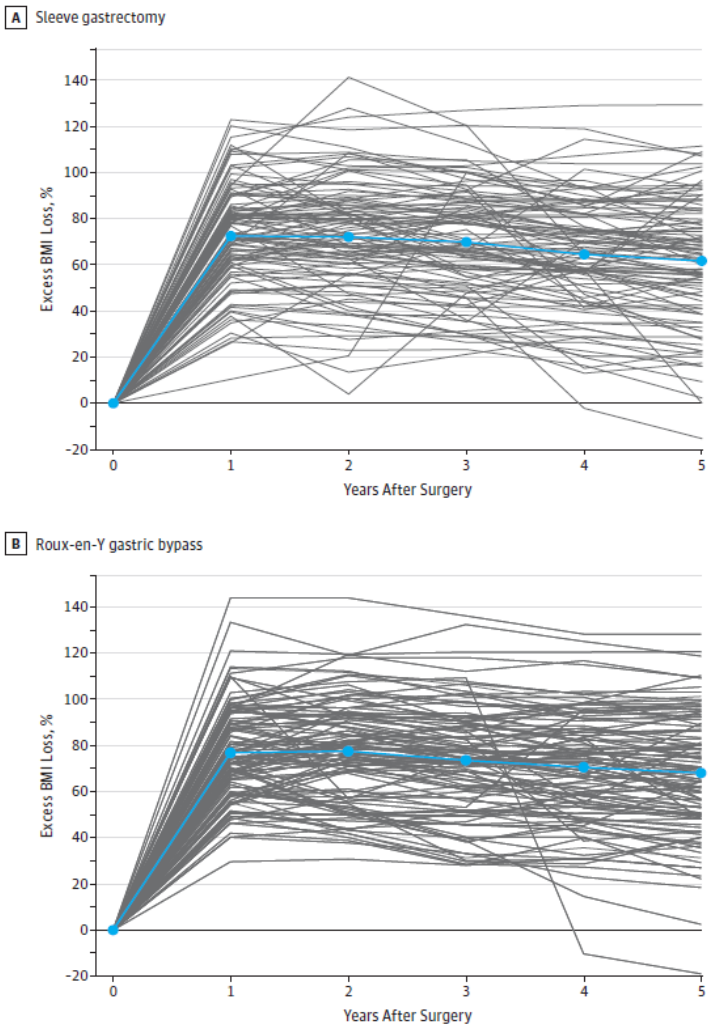


Schauer, Ann Surg 2009

EVOLUTION PONDÉRALE

- **Med**
  - +/- 3 % poids initial
  - Jusqu'à 10 % à 4 ans
- **Chir: 15-30 % poids initial**
- **Résultats standardisés**





SM-BOSS Trials, Jama 2018
Sjöstrom, NEJM 2007

EVOLUTION PONDÉRALE

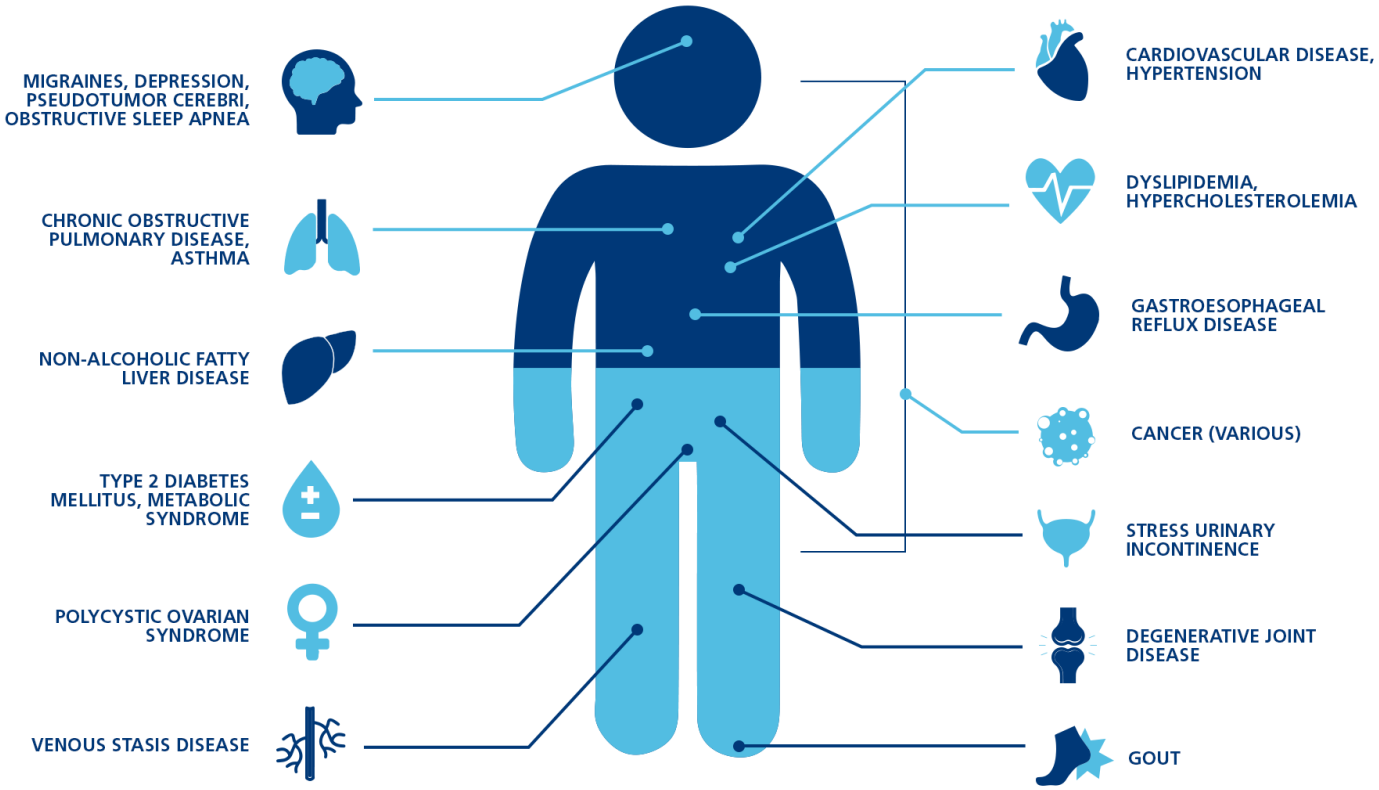
- **SLEEVE vs By Pass Gastrique (BPG) vs Anneau Gastrique Ajustable (AGA)**

	5 ans		10 ans	
	WL	EWL	WL	EWL
SLEEVE	18,8 %	49 – 61%		57 %
BPG	25,5 %	57 – 68 %	25 %	60 %
AGA	11,7 %		15 %	49 %

- **Echec : regain du poids initial à 5 – 10 ans**
  - SLEEVE : 12,5 – 14,6 %
  - BPG : 2,5 – 3,3 %
  - AGA : 30,5- 36 %

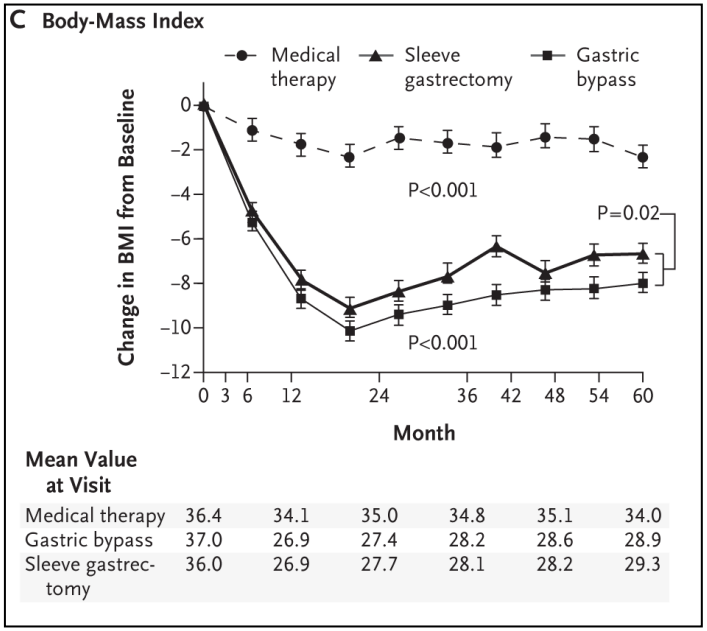
SM-BOSS Trials, Jama 2018
SLEEVEPASS, Jama 2018
David, Jama 2020

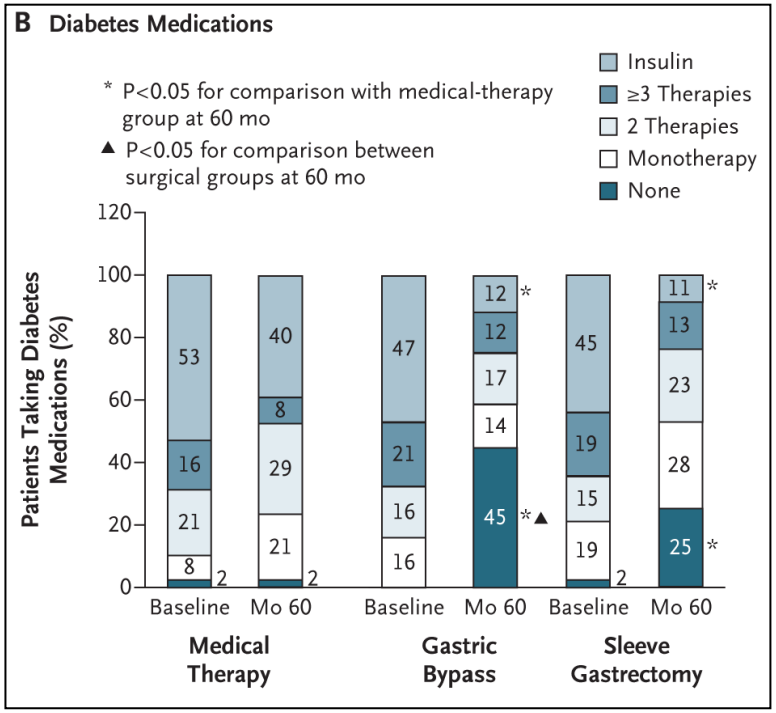
Co-Morbidités



Co-Morbidités: Diabète

- **STAMPEDE study**
  - RCT, n= 150 , BMI : 27 – 43
  - Suivi 5 ans
  - Ttt médical vs sleeve ou BPG





Evolution du diabète 8 ans
BPG
Faible influence du BMI

Schauer, NEJM 2017

Co-Morbidités: Diabète

Table. Twelve Randomized Clinical Trials of Bariatric Surgery vs Medical/Lifestyle Treatment of Type 2 Diabetes (n = 874)

Source	No. of patients randomized	Patients with body mass index <35, %[a]	Follow-up, y	Remission criteria[b]	Intervention and control group rates of remission,%[c]	*P* value
AGB vs control						
Dixon et al,[7] 2008	60	22	2	HbA_{1c} <6.2%	73 vs 13	<.001
Wentworth et al,[8] 2014	51	100	2	Fasting glucose <7.0 mmol/L	52 vs 8	.001
Ding et al,[9] 2015	45	34	1	HbA_{1c} <6.5%[d]	33 vs 23	.46
RYGB vs control						
Ikramuddin et al,[10] 2018	120	59	5	HbA_{1c} <7%	55 vs 14	<.001
Liang et al,[11] 2013	101	100	1	HbA_{1c} <6.5%[e]	90 vs 0 vs 0	<.001
Simonson et al,[12] 2018	38	34	3	HbA_{1c} <6.5%; FPG <126 mg/dL	42 vs 0	.005
Cummings et al,[13] 2016	43	25	1	HbA_{1c} <6.0%	60 vs 5.9	.002
Shah et al,[14] 2016	80	85	2	HbA_{1c} ≤6.5%	60 vs 2.5	.001
RYGB vs sleeve gastrectomy vs control						
Schauer et al,[15] 2017	150	36	5	HbA_{1c} ≤6.0%	22 vs 15 vs 0	<.05
RYGB vs biliopancreatic diversion vs control						
Mingrone et al,[16] 2015	60	0	5	HbA_{1c} ≤6.5%	37 vs 63 vs 0	.003
RYGB vs AGB vs control						
Courcoulas et al,[17,18] 2020	69	43	5	HbA_{1c} <6.5%	30 vs 19 vs 0	.004
RYGB, AGB, and sleeve gastrectomy vs control						
Parikh et al,[19] 2014	57	100	3	HbA_{1c} <6.5%	65 vs 0	<.001

Abbrevations: AGB, adjustable gastric banding; HbA_{1c}, glycated hemoglobin A_{1c}; RYGB, Roux-en-y gastric bypass.

Conventional conversion factor: To convert glucose to mg/dL, divide the value by 0.0555.

[a] Calculated as weight in kilograms divided by height in meters squared.

[b] Remission defined as reaching HbA_{1c} value without medication, unless otherwise specified.

[c] Intervention and control groups are shown in column 1.

[d] With or without medications.

[e] Remission not precisely defined or extrapolated.

David, Jama 2020

CoMorbidités: Diabète

- **Sleeve vs BPG**

Table 1 Clinical outcomes of the SLEEVEPASS (1) and SM-BOSS (2) studies

Measures	SLEEVEPASS			SM-BOSS		
	GB	SG	Comments	GB	SG	Comments
Complete type 2 diabetes remission	10/40 (25%)	5/41 (12%)	No significant differences	19/28 (67.9%)	16/26 (61.5%)	No significant differences

- **Améliorations des complications vasculaires**
- **Rechute à long terme**
  - Sleeve: 42 %
  - BPG: 30 %

Benaiges, Ann Transl Med 2018
SLEEVEPASS, Jama 2018
Sheng, Obes Surg 2017

Co-Morbidités: HTA

- Prévalence chez le sujet obèse 68%
- Rémission précoce élevée: 43-83%
- Contrôle tensionnel équivalent au ttt médical
- A long terme (10 ans) : 44 % des remissions traitée à nouveau
- Sleeve = BPG

Table 3. Changes in Comorbidities at 5 Years

Comorbidities[a]	No. (%) Sleeve Gastrectomy (n = 101)	No. (%) Roux-en-Y Gastric Bypass (n = 104)	Absolute Difference, % (95% CI)[b]	P Value Unadjusted	P Value Adjusted[c]
Hypertension					
Comorbidity present at baseline	64/101 (63.4)	64/104 (61.5)	0.02 (−0.12 to 0.16)	0.90[d]	
Remission	40 (62.5)	45 (70.3)	−0.09 (−0.29 to 0.11)	0.34[d]	>.99
Improved	16 (25)	14 (21.9)	0.04 (−0.18 to 0.27)	.68[d]	>.99
Unchanged	4 (6.3)	2 (3.1)	0.17 (−0.30 to 0.65)	.67[e]	>.99
Worsened	4 (6.3)	3 (4.7)	0.08 (−0.38 to 0.53)	>.99[e]	>.99
De novo development of comorbidity	2/37 (5.4)	2/40 (5)	0.01 (−0.49 to 0.51)	>.99[e]	

SM-BOSS Trials, Jama 2018
SLEEVEPASS, Jama 2018
David, Jama 2020

Co-Morbidités: SAOS

- Efficacité de la chirurgie à moyen terme
- Près de 45 % de remissions
- 50 % d'amélioration
- Suivi à long terme nécessaire risque de recidive

Table 3. Changes in Comorbidities at 5 Years

Comorbidities[a]	No. (%) Sleeve Gastrectomy (n = 101)	No. (%) Roux-en-Y Gastric Bypass (n = 104)	Absolute Difference, % (95% CI)[b]	P Value Unadjusted	P Value Adjusted[c]
Obstructive Sleep Apnea					
Comorbidity present at baseline	48/101 (47.5)	43/104 (41.3)	0.06 (−0.08 to 0.21)	.45[d]	
Remission	22 (45.8)	19 (44.2)	0.02 (−0.21 to 0.24)	.87[d]	>.99
Improved	24 (50)	22 (51.2)	−0.01 (−0.23 to 0.21)	.91[d]	>.99
Unchanged	0	1 (2.3)	−0.53 (−1.00 to 0.08)	.47[e]	>.99
Worsened	2 (4.2)	1 (2.3)	0.14 (−0.54 to 0.83)	>.99[e]	>.99
De novo development of comorbidity	5/53 (9.4)	1/61 (1.6)	0.39 (−0.01 to 0.79)	>.99[e]	

SM-BOSS Trials, Jama 2018
David, Jama 2020

CONCLUSION

- La chirurgie bariatrique améliore la mortalité à long terme
- Plusieurs co-morbidité chroniques dont le diabète, l'HTA et le SAOS bénéficient d'améliorations à moyen terme
- Ces pathologies chroniques ont un risque de récidive et doivent être surveillée au long cours
- Des registres de suivi prospectifs sont nécessaires à l'évaluation au long cours des résultats

Ce dont je n'ai pas parlé

- **Stéatose hépatique NASH**
  - Effet a court terme documenté même sur la fibrose
  - Etudes en cours sur les effets à long terme
  - Piste sur l'extension des indication ?
- **Atteinte ostéo articulaire**
  - Amélioration probable mais mal documenté
  - Polymorphisme des manifestations et des évaluations
  - Bridge à la chirurgie orthopédique
- **Fertilité et grossesse**
  - Effet contrasté homme/femme
  - Cohorte observationnelle en cours
- **Effet secondaire à long terme de la chirurgie**
  - RGO et sleeve
  - BPG et carence / BPG et occlusion

MERCI DE VOTRE ATTENTION

- **QUESTIONS ?**