Symposium Enterra Medical

Nausées et vomissements réfractaires : controverse médico-chirurgicale

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Sommaire

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Généralités

Journal of Visceral Surgery
Volume 159, Issue 1, Supplement, March 2022, Pages S8-S15

Review

Gastric motility disorders and their endoscopic and surgical treatments other than bariatric surgery

H. Soliman [a], G. Mariano [b], H. Duboc [c d], D. Giovinazzo [b], B. Coffin [d], G. Gourcerol [a], D. Moszkowicz [b c]

- Gastroparésie: association de symptômes cardinaux (N/V, douleurs abdominales, ballonnements, satiété précoce) et d'une vidange gastrique ralentie, en l'absence d'obstacle mécanique
- Idiopathique (40%) > diabète (30%), postopératoire (vagotomie), medts
- Scintigraphie de vidange gastrique (repas solide Tc^{99m}, repas liquide In^{111}): rétention >60% à 2h, <u>>10% à 4h</u>

Soliman, J Chir Visc, 2022

- Sévérité:
  - Inhalation, déshydratation, dénutrition
  - Œsophagite, Mallory Weiss, bézoard
  - Surmortalité

- Intensité: **Gastroparesis Cardinal Symptom Index** (GCSI)
  - 9 items (nausée, régurgitation, vomissement, plénitude gastrique, satiété précoce, plénitude post prandiale, perte d'appétit, ballonnement, distension abdominale)
  - Score > 3 (0-5): GP sévère; > 2,6: GP modérée

Sommaire

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Principes du traitement

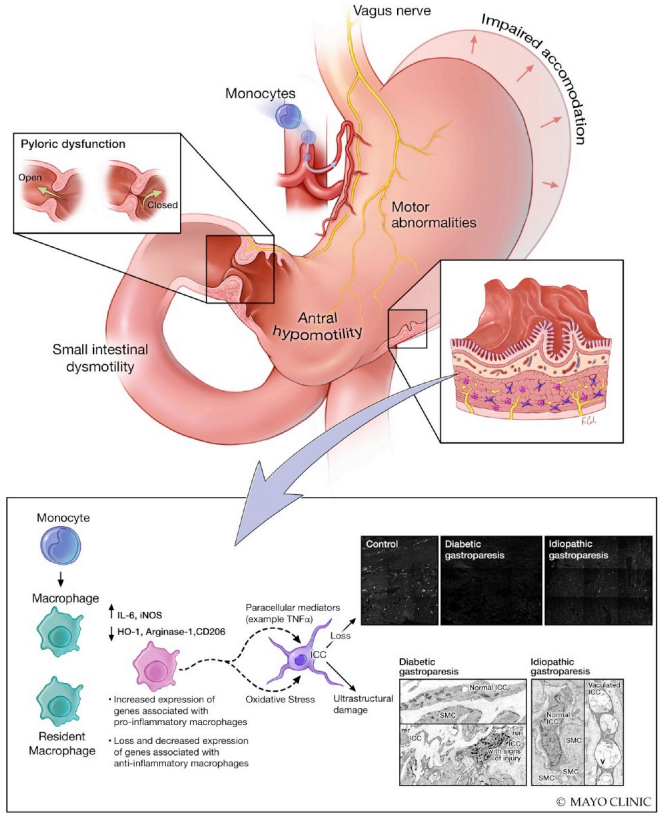
Dysfonction Motrice gastrique

- Vidange Gastrique *prokinétiques*
- Resynchronisation neuro-musculaire *GES*

Options thérapeutiques

Dysfonction du pylore

- Dilatation du pylore *Ballon*
- Section du pylore *G-POEM pyloroplastie*
- Relaxation du pylore *Toxine botulique*



Grover M et al. Gut 2019

Prise en charge de la GASTROPARESIE → Traitement étiologique

Traitement symptomatique

Règles diététiques et traitements pharmacologiques
- Prokinétiques (érythromycine, dompéridone, métoclopramide)
- Antiémétiques (5HT4+, Dopa2+) et antalgiques

échec

Traitements invasifs

Dilatation endoscopique du pylore

Injection intra-pylorique de TBA

Pacemaker gastrique

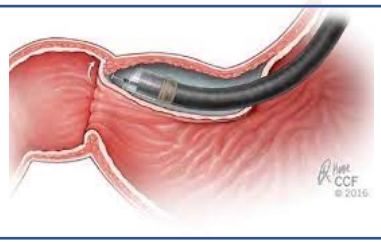
échec

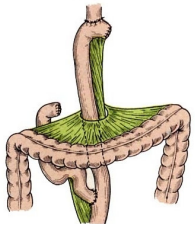
G-POEM

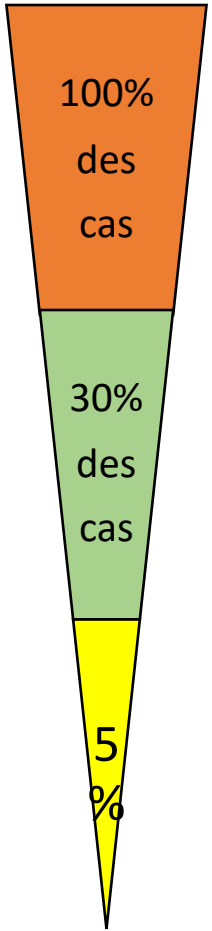
échec

Gastrectomie / Court-circuit gastrique

Pyloroplastie







ESCALADE THERAPEUTIQUE

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Soliman, J Chir Visc, 2022

Sommaire

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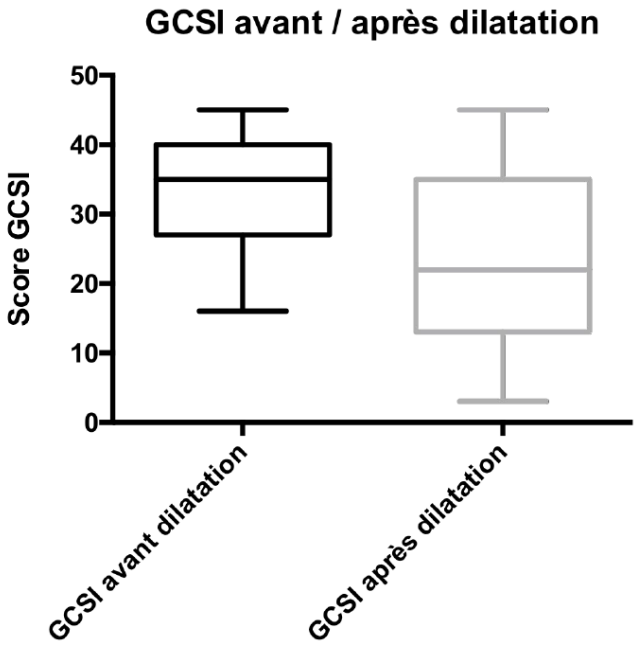
Efficacy and safety of endoscopic pyloric balloon dilation in patients with refractory gastroparesis

Published: 18 April 2022
Volume 36, pages 8012–8020, (2022) Cite this article

Heithem Soliman, Elsa Oiknine, Boris Cohen-Sors, David Moszkowicz, Caroline Gorbatchef, Marie Dior, Nicoleta Nebunu, Maude Le Gall, Benoit Coffin & Henri Duboc

Soliman, Surg Endosc, 2022

70% d'inefficacité à 2 ans



Wilcoxon matched-pairs signed rank test	
P value	< 0.0001
Exact or approximate P value?	Exact
P value summary	****

	GCSI avant dilatation	GCSI après dilatation
Number of values	47	47
Minimum	16.00	3.000
25% Percentile	27.00	13.00
Median	35.00	22.00
75% Percentile	40.00	35.00
Maximum	45.00	45.00
Mean	33.09	23.40
Std. Deviation	8.029	12.03
Std. Error of Mean	1.171	1.754

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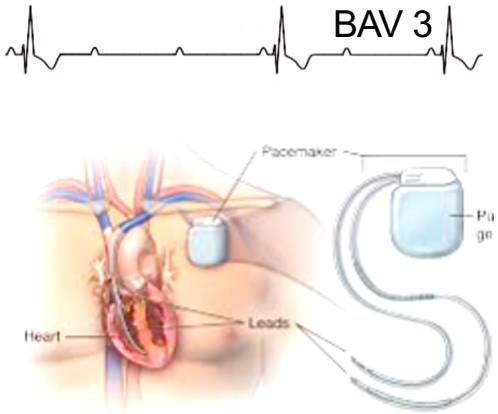
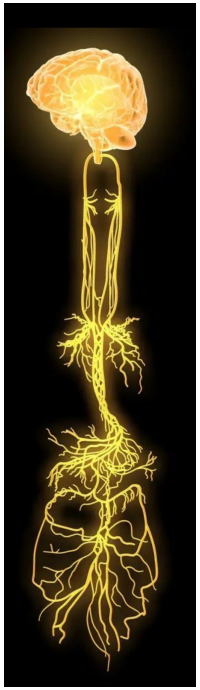
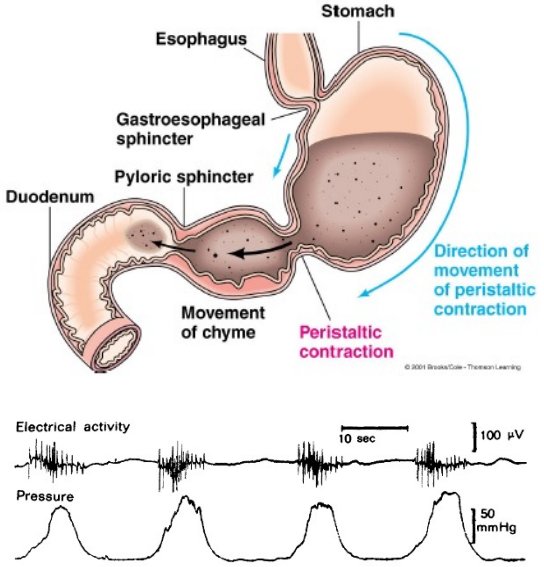
Principes de la NeuroStimulation Electrique Gastrique



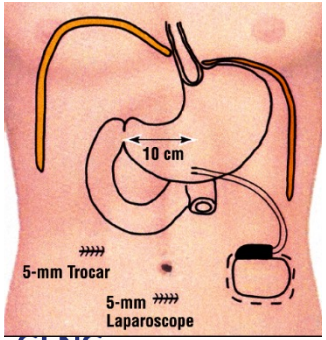
Resynchroniser la conduction éléctro-mécanique

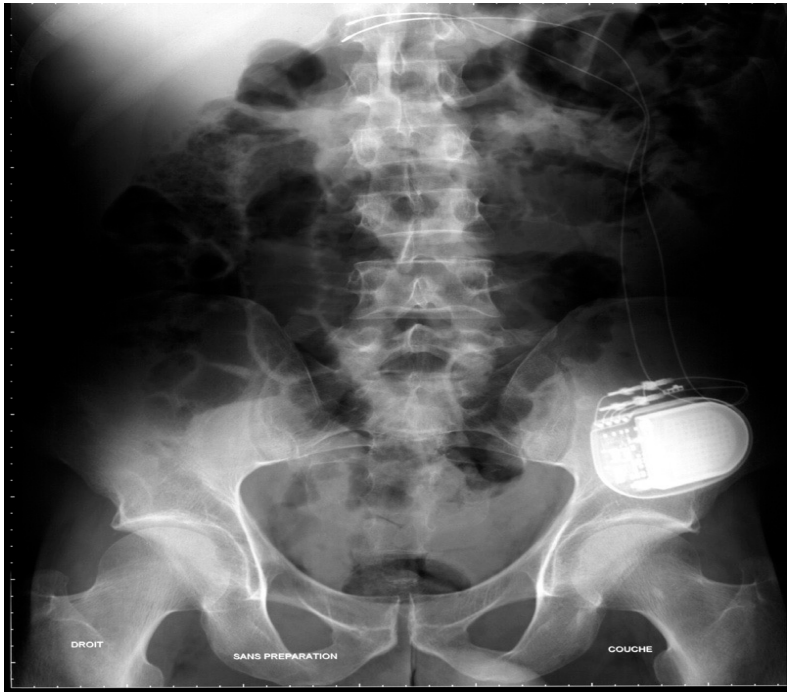




Amélioration du débit

Principes de la NeuroStimulation Electrique Gastrique





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Principes de la NeuroStimulation Electrique Gastrique

Ablation de stimulateur gastrique

Contents lists available at ScienceDirect

Surgery Open Digestive Advance

journal homepage: www.elsevier.com

Clinical case with video

Gastric pacemaker removal and conversion to circular-stapled gastric bypass for refractory diabetic gastroparesis (with video)

Alessandra Pecoraro[a,b,c], Henri Dubocq[d], David Moszkowicz[a,b,c,*]

Gastric pacemaker removal and conversion to circular-stapled Roux-en-Y gastric bypass for refractory diabetic gastroparesis

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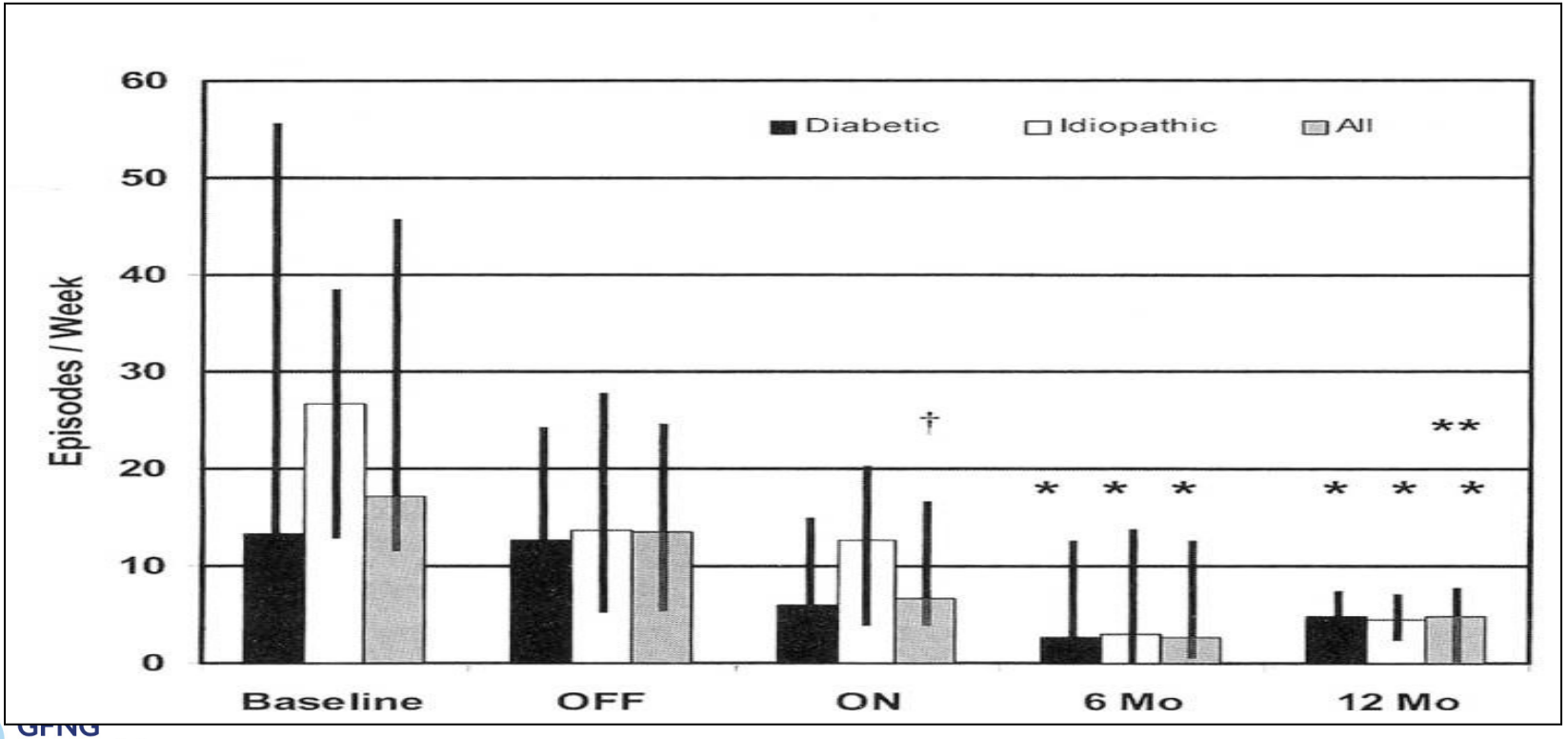
Etude "WAVESS"
Etude randomisée cross-over
33 patients, >7 vomissements/semaine

Gastric Electrical Stimulation for Medically Refractory Gastroparesis



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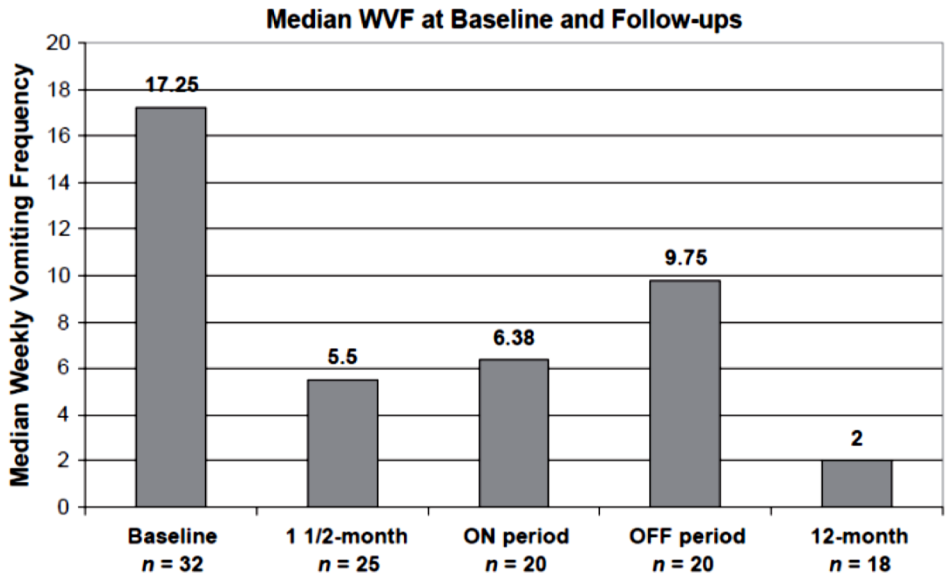
Abell T et al Gastroenterology 2003

Neurogastroenterology & Motility
Neurogastroenterol Motil (2013) **25**, 815–e636 doi: 10.1111/nmo.12185

Gastric electrical stimulation with Enterra therapy improves symptoms of idiopathic gastroparesis



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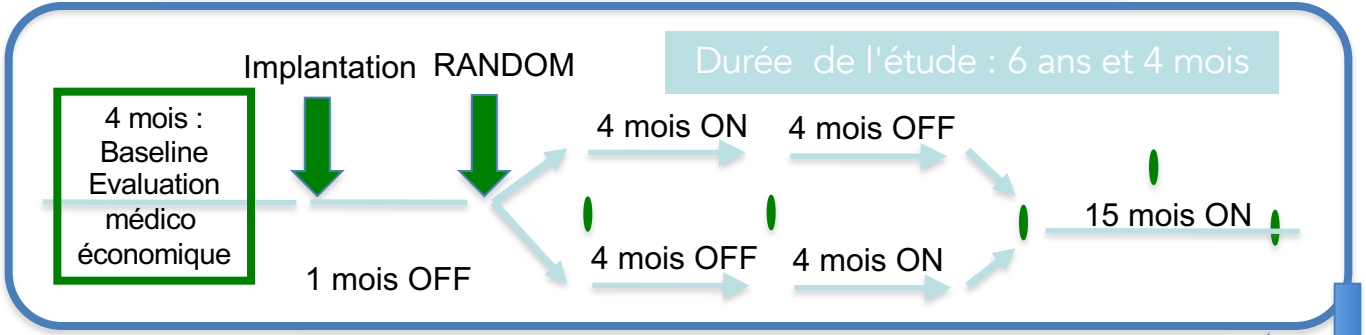
Maccallum, Neurogastro, 2013

Gastric Electrical Stimulation Reduces Refractory Vomiting in a Randomized Crossover Trial

Gastroenterology 2020;158:506–514

Patients souffrant de **nausées** ou de **vomissements** chroniques de nature **idiopathique, post-chirurgicale** ou associés à un **diabète de type 1 ou 2**



218 inclus ➔ 172 implantés ➔ 149 analysables

- Stimulateur ON = baisse des vomissements : 1/semaine vs 1/jour
- 40% des patients s'estiment améliorés VS 16 % aggravés
- Amélioration de l'équilibre glycémique
- Vidange normale = réponse, mais un peu moins…
- 1 explantation pour infection

Gastric Electrical Stimulation Reduces Refractory Vomiting in a Randomized Crossover Trial

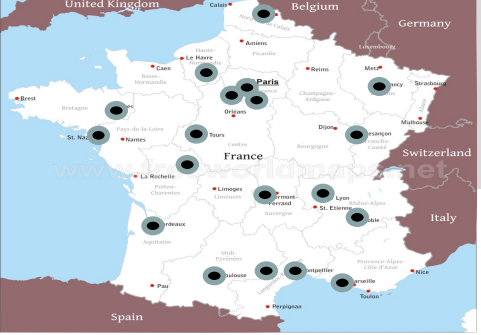
Gastroenterology 2020;158:506–514

Table 3. Vomiting Frequency Score During the Crossover Phase, %

Mode	ITT population (N = 172)	Diabetic Patients (n = 72)	Nondiabetic Patients (n = 100)
ON			
≥1 vomiting episode/mo (score, 0–2)	50.3	44.4	54.7
<1 vomiting episode/mo (score, 3 or 4)	49.7	55.6	45.3
OFF			
≥1 vomiting episode/mo (score, 0–2)	64.4	60.3	67.4
<1 vomiting episode/mo (score, 3 or 4)	35.6	39.7	32.6
	$P = .0006$	$P = .025$	$P = .007$

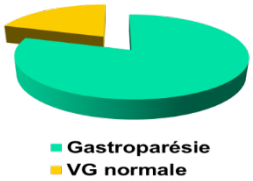
Ducrotte, Gastroenterology, 2020

Résultats en fonction de l'existence ou non d'une gastroparésie



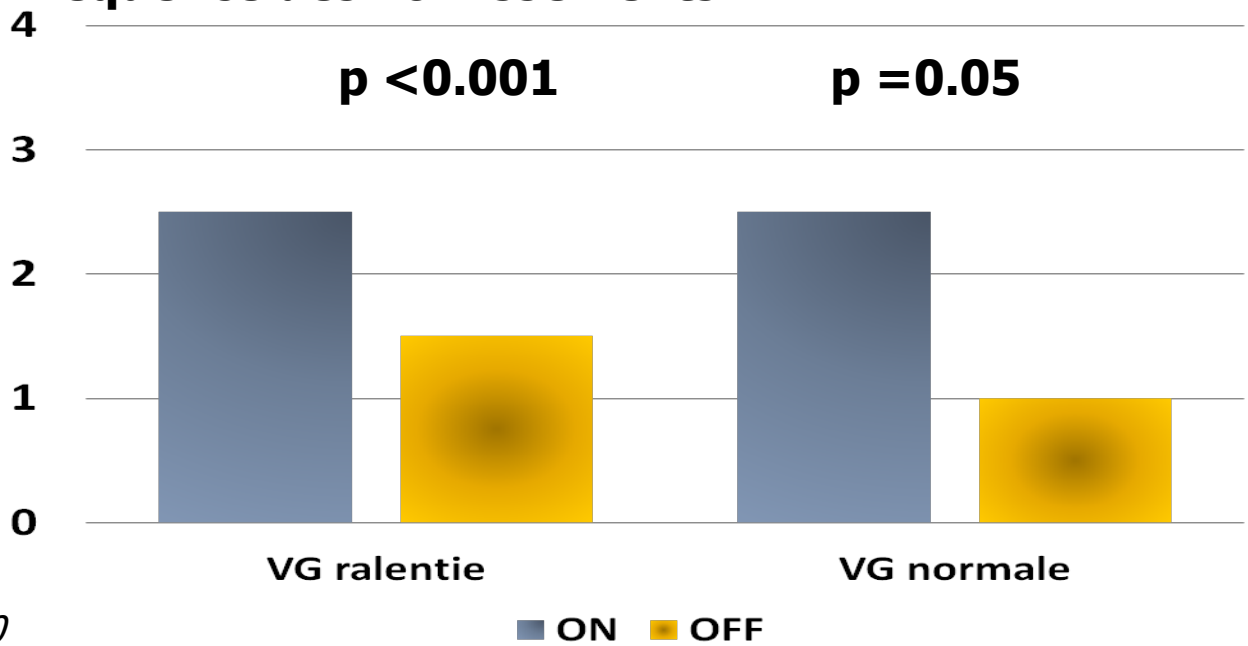
19 centres
172 patients

Fréquence des vomissements
4 : aucun 3: < 1 /mois 2: < 1 /semaine 1: plusieurs/semaine 0: quotidiens



Analyse en ITT

Fréquence des vomissements



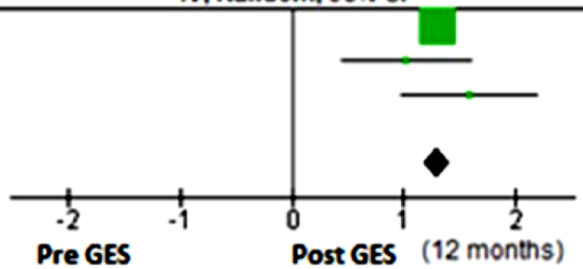
Ducrotte, Gastroenterology, 2020

Gastric Electrical Stimulation for the Treatment of Gastroparesis or Gastroparesis-like Symptoms: A Systemic Review and Meta-analysis

	Pre GES			Post GES				Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI
Abell et al. 2003	3.3	0.1	33	2	0.3	24	92.0%	1.30 [1.18, 1.42]
MacCallum et al. 2010	3.1	1.19	39	2.08	1.42	39	4.2%	1.02 [0.44, 1.60]
McCallum et al. 2013	2.95	0.85	19	1.37	1.07	19	3.8%	1.58 [0.97, 2.19]
Total (95% CI)			**91**			**82**	**100.0%**	**1.30 [1.18, 1.42]**

Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 1.69$, df = 2 (P = 0.43); $I^2 = 0\%$

Test for overall effect: Z = 21.27 (P < 0.00001)



Saleem, Neurom, 2022

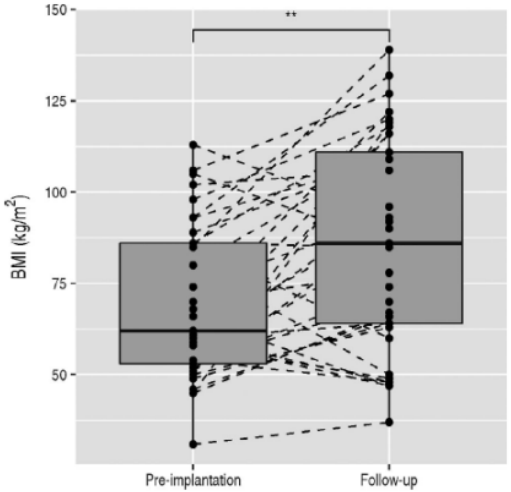
ORIGINAL ARTICLE

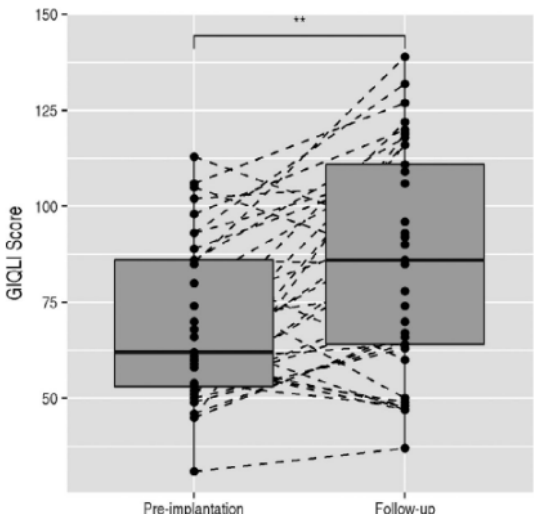
Neurogastroenterology & Motility (NGM) WILEY

Efficacy of gastric electrical stimulation in intractable nausea and vomiting at 10 years: A retrospective analysis of prospectively collected data

Abdellah Hedjoudje[1,2] | Emmanuel Huet[3,4] | Anne-marie Leroi[1,5] | Charlotte Desprez[1,4] | Chloé Melchior[4,6] | Guillaume Gourcerol[1,4,5]

	Overall patients	Diabetic patients (n = 22)	Non-diabetic patients (n = 28)
Number of patient, n (%)	50 (100)	22 (44)	28 (56)
Age (y),mean ± SD	45.6 ± 13.6	49.4 ± 13.4	42.6 ± 13.4
Female, n (%)	30 (60.0)	10 (45.5)	20 (71.4)
Male, n (%)	20 (40.0)	12 (54.5)	8 (28.6)
Mean follow-up (y), mean ± SD	10.5 ± 3.7	9.02 ± 2.71	11.5 ± 4.0
Gastric emptying T1/2 (min), mean ± SD	221.39 ± 86.21	217.58 ± 93.74	224.28 ± 81.89





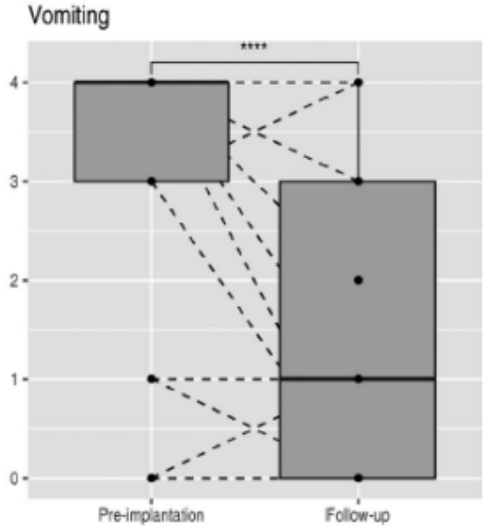


FIGURE 2 Box plots of body mass index measured at baseline (pre-operative) and over 10-y follow-up after gastric electrical stimulation

Hedjoudje, Neurogastro, 2020

G-ES: série Louis-Mourier / Lille

- Entre fév. 2015 et mars 2024
- N= 172 neurostimulateurs
  - Lille: n=18
  - LMR: n=154
    - Enterra n=24
    - Enterra II n=130
    - n= 122 patients
- 41 ans (16-82)
- Durée d'hospitalisation: 3,6 j (1-36)

- Décédés depuis la pose: n=17 (10%)
- PM retirés: n=32 (26%)
- Autre traitement invasif:
  - Jejunostomie: n=24
  - G-POEM: n=87
  - Dilatation du pylore: n=82 (67%)
  - Botox: n=24
- Conversion en bypass: n=19 (15%)

Chirurgie: pyloroplastie?

ELSEVIER

SURGERY FOR OBESITY AND RELATED DISEASES

Surgery for Obesity and Related Diseases 17 (2021) 799–814

Review article

Medical and surgical management of gastroparesis: a systematic review

Maria C. Fonseca Mora, M.D., Cristian A. Milla Matute, M.D., Rene Alemán, M.D., Marco Castillo, M.D., Giulio Giambartolomei, M.D., Alison Schneider, M.D., Samuel Szomstein, M.D., F.A.C.S., F.A.S.M.B.S., Emanuele Lo Menzo, M.D., Ph.D., F.A.C.S., F.A.S.M.B.S., Raul J. Rosenthal, M.D., F.A.C.S, F.A.S.M.B.S.*

Table 5
Supporting literature surgical pyloroplasty

Author	Evidence rating*	Surgery cases	Success rate	Complications rate
Hibbard et al. (2011) [64]	2; RCS	28 total (75% IG, 15% DG) 92.8% LP + 7.1% LTO-CP	83% at 1 mo 71% normalized GET	14% (recurrent symptoms) required reintervention.
Toro et al. (2013) [21]	2; RCS	50 LP + fundoplication for GERD)	82% at 3 mo confirmed by GE	10% requiring additional gastric drainage (no further complications)
Mancini et al. (2015) [20]	2; RCS	46 Open and LP (30% diabetic).	90% improved GET 60% normalized GET	None
Sarosiek et al. (2013) [58]	2; PCS	49 (34.6% DG, 18.3% IG, 46.9% PSG) LP and GES	64% versus 7% improved GET (LP versus GES) 71% improved total symptoms (GES + LP)	Wound infection rate of 5% (LP)
Shada et al. (2016) [64]	2; PCS	177 (Fundoplications + LP)	87% significant symptoms improvement and its severity ($P > .01$) 86% GET improvement.	No intraoperative complication Failure rate was found to be 22%. 6.8% morbidity rate (1.1% leak rate).
Davis et al. (2017) [22]	2; NRCT	27 (62.9% DG + 37% IG) LP + GES simultaneously. 38-mo follow-up	LP + GES: 71% improvement on TSS and severity with 60% normalized GET LP alone: 30% with normalized GET	12% long-term mortality No increased in infection rate
Arthur et al. (2018) [23]	2; RCCS	58 overall 56.8% GES versus 12% LP alone 27.5% combined	Symptoms relieved. GES: 85%; LP: 28.5%; GES & LP: 71.4%	No mortality

Mais les endoscopistes font probablement
au moins aussi bien…

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Chirurgie: résection ou dérivation?

Surgical Endoscopy (2020) 34:1847–1855
https://doi.org/10.1007/s00464-019-06951-3

2019 SAGES ORAL

Gastrectomy versus stomach left in situ with Roux-en-Y reconstruction for the treatment of gastroparesis

Joshua P. Landreneau[1,2] · Andrew T. Strong[1,2] · Kevin El-Hayek[1,2] · Matthew D. Kroh[1,2,3] · John H. Rodriguez[1,2]

Gastrectomie: *plus morbide…*

Variable	RY-SIS ($n=26$)	Gastrectomy ($n=27$)	p Value
Approach (N, %)	–	–	0.24
Laparoscopic (N, %)	26 (100.0%)	24 (88.9%)	–
Laparoscopic converted to open (N, %)	0 (0.0%)	3 (11.1%)	–
Operative time (mean ± SD, min)	154.8 ± 42.0	222.8 ± 67.2	**< 0.001**
Estimated blood loss (mean ± SD, mL)	23.7 ± 25.1	130.4 ± 135.2	**< 0.001**
Enteral access placed during surgery (N, %)	6 (23.1%)	8 (29.6%)	0.60
Gastrostomy (N, %)	6 (23.1%)	6 (22.2%)	0.94
Jejunostomy (N, %)	0 (0.0%)	2 (7.4%)	0.16
Length of stay (mean ± SD, days)	4.0 ± 1.4	7.6 ± 5.6	**0.003**
Complications within 30 days (N, %)	2 (7.7%)	12 (44.4%)	**0.001**
Superficial SSI (N, %)	1 (3.8%)	4 (14.8%)	0.17
Organ-space SSI (N, %)	0 (0.0%)	3 (11.1%)	0.08
Reoperation (N, %)	0 (0.0%)	5 (18.5%)	**0.02**
Gastrointestinal hemorrhage (N, %)	0 (0.0%)	2 (7.4%)	0.16
Deep-vein thrombosis (N, %)	0 (0.0%)	1 (3.7%)	0.33
Death (N, %)	1 (3.8%)	1 (3.7%)	0.98
Readmission within 30 days (N, %)	1 (3.8%)	10 (37.0%)	**0.003**

Table 4 Reported gastroparesis symptoms

Symptom	Preoperative			6 months post-operatively			12 months post-operatively		
	RY-SIS ($n=26$)	Gastrectomy ($n=27$)	p-Value	RY-SIS ($n=20$)	Gastrectomy ($n=18$)	p-Value	RY-SIS ($n=17$)	Gastrectomy ($n=11$)	p-Value
Nausea	24 (92.3%)	25 (92.6%)	0.97	13 (65.0%)*	8 (44.4%)*	0.21	9 (52.9%)*	6 (54.5%)*	0.94
Vomiting	23 (88.5%)	21 (77.8%)	0.32	8 (40.0%)*	4 (22.2%)*	0.24	6 (35.3%)*	3 (27.3%)*	0.66
Abdominal pain	15 (57.7%)	13 (48.1%)	0.51	9 (45.0%)	6 (33.3%)	0.47	10 (58.8%)	3 (27.3%)	0.11
Bloating	13 (50.0%)	12 (44.4%)	0.70	1 (5.0%)*	1 (5.6%)*	0.94	3 (17.6%)*	3 (27.3%)	0.55
Early satiety	3 (11.5%)	9 (33.3%)	0.07	1 (5.0%)	0 (0.0%)*	0.36	0 (0.0%)	1 (9.1%)	0.22
Reflux	9 (34.6%)	7 (25.9%)	0.51	0 (0.0%)*	0 (0.0%)*	>0.99	1 (5.9%)*	2 (18.2%)	0.31

… pas plus efficace?

ELSEVIER

Surgery for Obesity and Related Diseases ■ (2022) 1–4

SURGERY FOR OBESITY AND RELATED DISEASES

Original article

Roux-en-Y gastric bypass as a salvage solution for severe and refractory gastroparesis in malnourished patients

David Moszkowicz, M.D., Ph.D.[a,b,*], Germano Mariano, M.D.[b], Heithem Soliman, M.D.[c], Daniela Calabrese, M.D.[b], Benoit Coffin, M.D.[a,c], Henri Duboc, M.D., Ph.D.[a,c]

Table 1
Preoperative nutritional parameters*

Patient/case	Preoperative body mass index	Preoperative albumin (g/L)	Need for preoperative artificial nutrition	Weight loss at diagnosis (kg)	Considered malnourished or patient with obesity (Ob)
1	46.6	28	No	None	Ob
2	44.8	30.9	No	None	Ob
3	20.2	23	Yes	8	Malnourished
4	23.4	26	Yes	23	Malnourished
5	18.7	37	No	25	Malnourished
6	20.9	37	Yes	22	Malnourished
7	16.4	42	Yes	20	Malnourished
8	19.9	31	Yes	21	Malnourished
9	21.7	29	No	15	Malnourished

* Every malnourished patient experienced reduction in food intake ≥50% compared with quantified usual food intake.

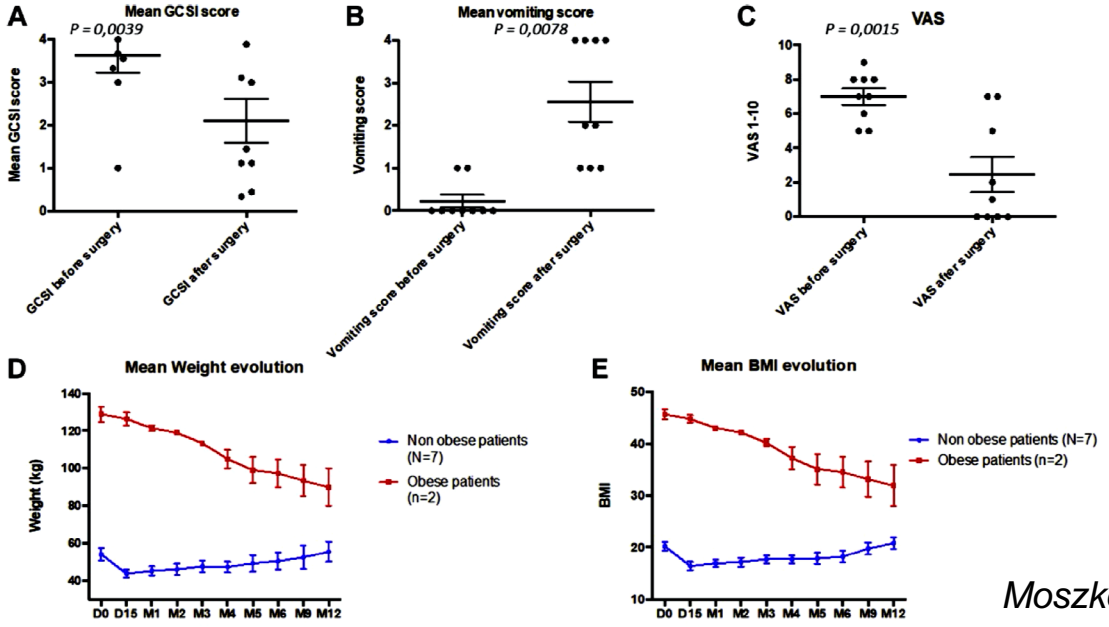

Fig. 1. (A) Gastroparesis Cardinal Symptom Index (GCSI) score; (B) vomiting score; (C) visual analog scale (VAS) score for abdominal pain; (D) weight; (E) body mass index (BMI) changes after Roux-en-Y gastric bypass in the whole series.

GFNG
Groupe Français de Neuro-Gastroentérologie

Moszkowicz, SOARD, 2022

Sommaire

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Conclusion: pas vraiment de consensus ESNM (2021)

Received: 21 November 2020 | Accepted: 28 December 2020
DOI: 10.1111/nmo.14237

ORIGINAL ARTICLE

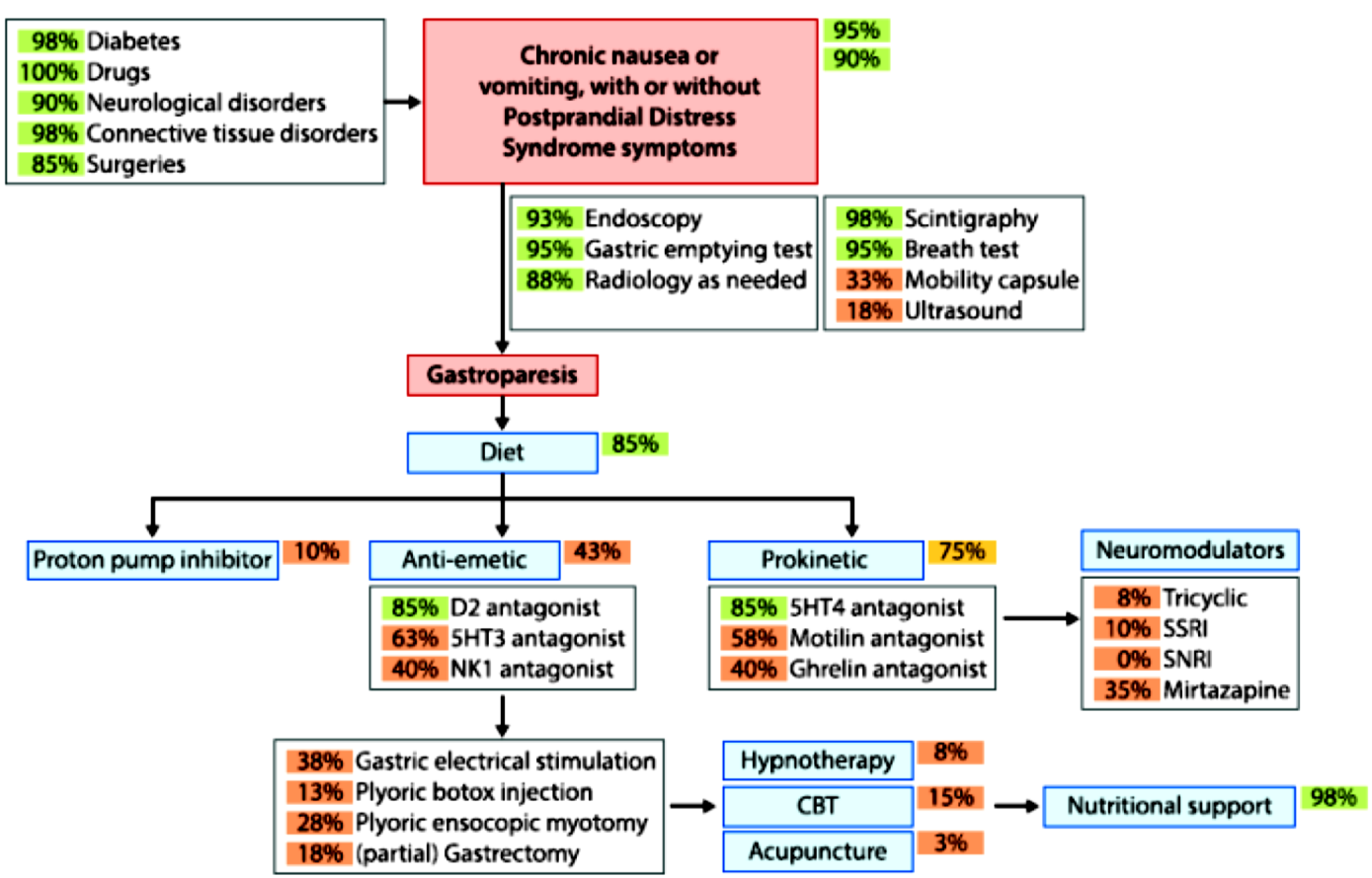
ueg Neurogastroenterology & Motility ESNGM WILEY

United European Gastroenterology (UEG) and European Society for Neurogastroenterology and Motility (ESNM) consensus on gastroparesis

- **6.1. Dietary adjustments are useful for managing gastroparesis patients.**
- STATEMENT ENDORSED, overall agreement 85%: A+ 35%, A 50%, A- 15%, D- 0%, D 0%, D+ 0%. GRADE B

- **6.5. Anti-emetic (anti-'nauseant') therapy is the most appropriate first line therapy for gastroparesis.**
- STATEMENT *NOT* ENDORSED, overall agreement 43%: A+ 5%, A 38%, A- 33%, D- 10%, D 15%, D+ 0%
- . **6.11. Prokinetic therapy is effective for gastroparesis.**
- STATEMENT *NOT* ENDORSED, overall agreement 75%: A+ 18%, A 58%, A- 23%, D- 0%, D 3%, D+ 0%. GRADE B
- **6.17. Tricyclic antidepressants are effective for gastroparesis.**
- STATEMENT *NOT* ENDORSED, overall agreement 8%: A+ 3%, A 5%, A- 25%, D- 23%, D 40%, D+ 5%. GRADE B
- **6.26. Gastric electrical stimulation is effective for gastroparesis.**
- STATEMENT *NOT* ENDORSED, overall agreement 38%: A+ 15%, A 23%, A- 38%, D- 15%, D 10%, D+ 0%. GRADE B
- **6.27. Pyloric botulinum toxin injection is effective for gastroparesis.**
- STATEMENT *NOT* ENDORSED, overall agreement 13%: A+ 0%, A 13%, A- 38%, D- 20%, D 25%, D+ 5%. GRADE B
- **6.28. Pyloric myotomy is effective for gastroparesis.**
- STATEMENT *NOT* ENDORSED, overall agreement 28%: A+ 5%, A 23%, A- 43%, D- 10%, D 20%, D+ 0%. GRADE B
- **6.29. Partial or subtotal gastrectomy is effective for gastroparesis.**
- STATEMENT *NOT* ENDORSED, overall agreement 18%: A+ 3%, A 15%, A- 38%, D- 8%, D 33%, D+ 5%.

Schol J, UEG, 2020



Schol J, UEG, 2020

Conclusion (Benoit COFFIN, Haithem SOLIMAN, Henri DUBOC)

- Etre certain qu'il n'y a pas d'obstacle (linite!)
- Diabète sans complications associées : ce n'est pas une gastroparésie diabétique

1 - Traitements prokinétiques
Erythromycine (tachyphylaxie, QT long)

2 - Endoscopie de 1ère intention
Dilatation pylorique

3 - G-POEM ou G-ES ?
- Selon expertise et disponibilité, attente des résultats du G-POEM sur le long terme
- Neurostimulation : problème de PEC CPAM
- Association des 2 méthodes ?

4 - Chirurgie
- RYGBP à anse courte: cas sélectionnés (GP sévère & réfractaire)
- Recherche: bipartition du transit avec endo-sleeve?

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