

Supplementary Materials

Table S1. Anti-emetic effect. GCSI Score comparison among diabetic and idiopathic Gp patient in a recent NIH DiaComp funded study. The temporary GES was measured at 6 days and the permanent GES values at 6 months [4].

Characteristics	All DiaComp patients			Diabetic patients			Idiopathic patients		
	Baseline	Temp	Perm	Baseline	Temp	Perm	Baseline	Temp	Perm
	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)
GCSI									
Nausea	3.5 (0.2)	1.7 (0.3)	2.6 (0.3)	3.3 (0.3)	1.8 (0.3)	2.6 (0.4)	3.8 (0.4)	1.7 (0.4)	2.6 (0.4)
Retching	2.4 (0.3)	0.8 (0.3)	1.5 (0.3)	2.6 (0.3)	1.1 (0.3)	1.8 (0.4)	2.1 (0.4)	0.5 (0.4)	1.3 (0.4)
Vomiting	2.4 (0.3)	0.6 (0.3)	1.8 (0.3)	2.4 (0.4)	0.9 (0.4)	2 (0.4)	2.3 (0.4)	0.4 (0.4)	1.6 (0.4)
Nausea subtotal	8.2 (0.7)	3.1 (0.7)	5.5 (0.8)	8.3 (0.8)	3.6 (0.9)	6.3 (1)	8.1 (1)	2.5 (1)	4.8 (1.1)
Stomach fullness	3.5 (0.2)	1.9 (0.2)	2.2 (0.3)	3.5 (0.3)	1.9 (0.3)	2.4 (0.4)	3.6 (0.3)	1.9 (0.3)	2 (0.4)
Finish meal	3.1 (0.3)	1.9 (0.3)	2.3 (0.3)	3.2 (0.3)	1.9 (0.4)	2.5 (0.4)	3 (0.4)	1.9 (0.4)	2.1 (0.4)
Full early	3.4 (0.3)	1.7 (0.3)	2.1 (0.3)	3.4 (0.3)	1.8 (0.3)	2.8 (0.4)	3.4 (0.4)	1.6 (0.4)	1.5 (0.4)
Appetite loss	3.5 (0.3)	1.7 (0.3)	1.8 (0.3)	3.5 (0.3)	1.6 (0.4)	1.6 (0.4)	3.6 (0.4)	1.7 (0.4)	2 (0.4)
Satiety subtotal	13.5 (0.8)	7.2 (0.9)	8.6 (1)	13.2 (1)	7.3 (1.1)	9.3 (1.3)	13.8 (1.2)	7.2 (1.2)	7.8 (1.3)
Bloating	3.7 (0.3)	1.8 (0.3)	3 (0.3)	3.4 (0.3)	1.9 (0.3)	2.6 (0.4)	3.9 (0.4)	1.7 (0.4)	3.3 (0.4)
Stomach size	3 (0.3)	1.4 (0.3)	2.3 (0.3)	2.7 (0.4)	1.6 (0.4)	2.2 (0.5)	3.3 (0.4)	1.3 (0.4)	2.5 (0.5)
Bloating subtotal	6.8 (0.5)	3.3 (0.6)	5.2 (0.6)	6.4 (0.7)	3.5 (0.7)	4.9 (0.8)	7.3 (0.8)	3.1 (0.8)	5.6 (0.8)
Total symptom score	28.7 (1.6)	13.5 (1.6)	19.6 (1.9)	28.4 (2)	14.5 (2)	20.5 (2.5)	29 (2.3)	12.6 (2.3)	18.7 (2.5)

Table S2. Antiarrhythmic effect. Changes in EGG and mEG parameters at baseline, temporary and permanent GES, stratified into diabetes and idiopathic Gp patients, in the NIH DiaComp study [4].

Characteristics	All DiaComp patients			Diabetic patients			Idiopathic patients		
	Baseline	Temp	Perm	Baseline	Temp	Perm	Baseline	Temp	Perm
	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)
EGG									
Frequency	5.3 (0.2)	4.6 (0.2)	4.4 (0.2)	5.3 (0.2)	4.5 (0.2)	4.3 (0.3)	5.4 (0.3)	4.6 (0.3)	4.4 (0.3)
Amplitude	0.2 (0.1)	0.2 (0.1)	0.2 (0.1)	0.3 (0.1)	0.3 (0.1)	0.2 (0.1)	0.1 (0.1)	0.1 (0.1)	0.1 (0.1)
FAR	106 (11.7)	70.3 (11.7)	74.4 (13.5)	88.2 (14.2)	57.7 (14.8)	74 (18.1)	123.8 (17)	82.9 (16.6)	74.8 (18.3)
PROP Score	0.8 (0.1)	1.1 (0.1)	1 (0.1)	0.9 (0.2)	1 (0.2)	0.9 (0.2)	0.8 (0.2)	1.1 (0.2)	1.1 (0.2)
mEG									
Frequency	4.8 (0.2)	4 (0.2)	0 (0)	4.9 (0.3)	3.8 (0.3)	—	4.6 (0.3)	4.1 (0.3)	—
Amplitude	1.2 (0.2)	1 (0.2)	0 (0)	1.2 (0.2)	1.1 (0.2)	—	1.1 (0.3)	0.9 (0.3)	—
FAR	9.3 (3.6)	15.5 (3.8)	0 (0)	6.5 (4.2)	15.2 (4.6)	—	12.1 (5.1)	15.8 (5.6)	—
prox_r	1 (0)	1 (0)	0 (0)	1 (0)	1 (0)	—	1 (0)	1 (0)	—
prox_a	0.8 (0.1)	0.9 (0.1)	0 (0)	0.8 (0.1)	0.9 (0.1)	—	0.8 (0.1)	0.9 (0.1)	—
prox_freq	4.9 (0.2)	4.4 (0.2)	0 (0)	5.1 (0.2)	4.3 (0.3)	—	4.6 (0.3)	4.5 (0.3)	—
prox_amp	1.3 (0.1)	1.1 (0.2)	0 (0)	1.3 (0.2)	1.3 (0.2)	—	1.4 (0.2)	0.9 (0.2)	—
prox_far	8.8 (4.6)	19.6 (5)	0 (0)	6.6 (5.5)	17.6 (6.3)	—	11.1 (6.6)	21.6 (7.3)	—

Table S3. Improvement in symptom scores, weights and BMI, route of nutrition and quality of life. Intermediate (1–2 year) and Long term (5 years) follow up data on 28 patients in long term GES study [22].

	TSS	WVFS	Weight	BMI	NR	NQOL	OQOL
Baseline	37.1	3.9 ± 0.1	69.9 ± 3.6	24.1 ± 1	8 po/2 po T/2 po H	—	—
1 to 2 Years	15.75	1.4 ± 0.6	72.7 ± 6.4	25.6 ± 2	8 po/1 poT/1 po H	—	—
5 Years	20.3	1.7 ± 0.5	71.4 ± 5.9	24.6 ± 2	9 po/1 po T	+2/+1.2	+3/+2.1
Improvement, %	51	61.6	<5	<5	30	Median/ Mean	Median/ Mean
p from baseline	<.05	<.01	.8	.8			

WVFS, weekly vomiting frequency score; NR, Route of nutrition; NQOL, nutrition quality of life; OQOL, overall quality of life.

Table S4. Importance of Cajal/ICC counts in GES response. Comparison Between Pre-GES and Post-GES Treatment Outcomes in Terms of Gastric Emptying and Gastroparesis Symptom Score, grouped according to ICC counts [28].

Groups	Variables	Pretreatment (Mean ± SD)	Posttreatment (Mean ± SD)	P	
Group A (ICC > 2.00) (N = 14)	Nausea	2.70 ± 1.54	1.64 ± 1.55	0.022	
	Vomiting	3.50 ± 0.76	1.43 ± 1.62	< 0.001	
	Bloating	3.18 ± 0.82	1.36 ± 1.39	< 0.001	
	Abdominal pain	2.29 ± 1.33	1.39 ± 1.64	0.063	
	Total symptom	15.18 ± 3.26	7.36 ± 6.85	0.002	
	Gastric emptying test (1 h)	75.47 ± 13.80	57.97 ± 21.34	0.035	
	Gastric emptying test (2 h)	53.20 ± 20.54	45.28 ± 20.02	0.324	
	Gastric emptying test (4 h)	22.62 ± 25.51	18.66 ± 13.88	0.607	
	Serosal frequency	3.96 ± 1.02	3.83 ± 1.36	0.789	
	Serosal amplitude	0.56 ± 0.46	0.37 ± 0.30	0.0592	
	Serosal ratio	17.89 ± 26.81	24.13 ± 33.22	0.582	
	Group B (ICC < 2.00) (N = 9)	Nausea	3.5 ± 0.76	1.57 ± 1.43	0.022
		Vomiting	3.79 ± 0.39	2.14 ± 1.68	0.035
Bloating		3.00 ± 1.00	2.00 ± 2.00	0.0863	
Abdominal pain		3.71 ± 0.49	2.20 ± 1.82	0.075	
Total symptom		16.43 ± 2.23	9.93 ± 7.68	0.047	
Gastric emptying test (1 h)		63.78 ± 26.01	68.86 ± 33.14	0.646	
Gastric emptying test (2 h)		41.22 ± 33.44	49.37 ± 34.21	0.343	
Gastric emptying test (4 h)		23.89 ± 34.10	30.82 ± 30.82	0.166	
Serosal frequency		4.67 ± 1.57	4.23 ± 1.30	0.541	
Serosal amplitude		0.18 ± 0.10	0.19 ± 0.13	0.791	
Serosal ratio		45.12 ± 40.87	40.15 ± 28.21	0.767	

GES indicates gastric electrical stimulation; ICC, interstitial cells of Cajal.

Table S5. Baseline and Permanent GES's Gastroparesis Symptom Scores in all Patients and those with Severe and Non-severe Pain [30].

Symptoms	All Patients			Severe Pain			Nonsevere Pain		
	Baseline (n = 95)	During Permanent GES (n = 82)	P Value of Difference	Baseline (n = 68)	During Permanent GES (n = 58)	P Value of Difference	Baseline (n = 27)	During Permanent GES (n = 24)	P Value of Difference
Abdominal pain score (SD)	2.95 (1.24)	2.10 (1.58)	< 0.001	3.62 (0.45)	2.30 (1.57)	< 0.001	1.26 (0.94)	1.60 (1.51)	0.221
Early satiety score (SD)	2.99 (1.21)	1.94 (1.31)	< 0.001	3.10 (1.1)	2.02 (1.28)	< 0.001	2.72 (1.45)	1.74 (1.39)	0.005
Distension score (SD)	2.85 (1.33)	2.25 (1.66)	< 0.001	3.15 (1.11)	2.43 (1.69)	0.005	2.11 (1.56)	1.81 (1.52)	0.197
Nausea (SD)	3.42 (0.86)	2.42 (1.63)	< 0.001	3.44 (0.87)	2.64 (1.69)	< 0.001	3.35 (0.83)	1.88 (1.32)	< 0.001
Vomiting (SD)	2.43 (1.38)	1.60 (1.63)	< 0.001	2.54 (1.33)	1.84 (1.69)	0.001	2.13 (1.48)	0.98 (1.29)	0.001
Total symptom score	14.63 (3.46)	10.13 (6.02)	< 0.001	16.04 (2.75)	11.1 (6.03)	< 0.001	11.63 (3.28)	7.80 (5.27)	0.003

GES, gastric electrical stimulation; SD, standard deviation.